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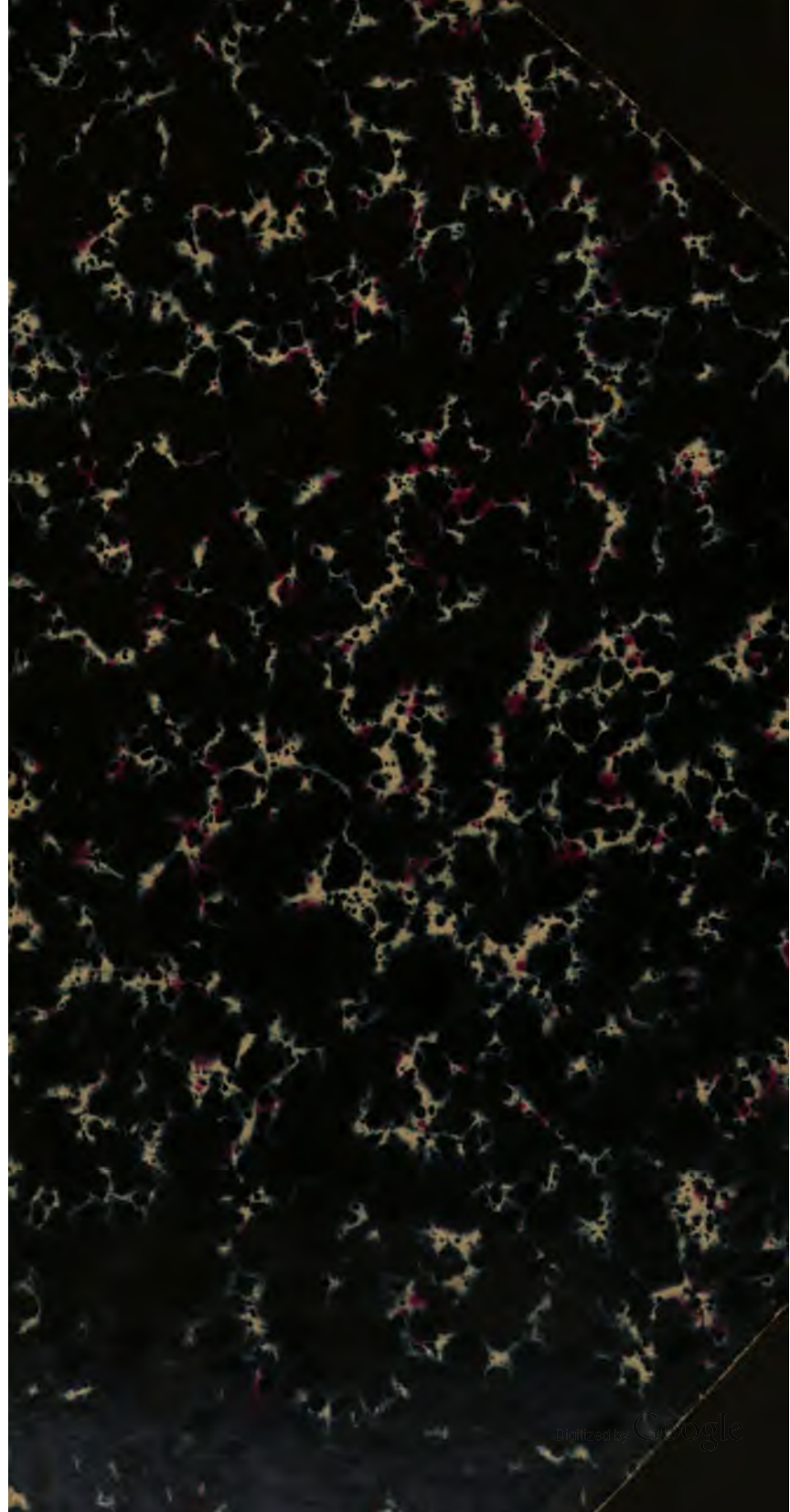
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Each month is various to present
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Tennyson—"The Two Voices."

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"	II.—	<i>Hastula hyperana</i> ,	Mill.	(see page 157).
"	III.—	"	"	"
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"	VIII.—	<i>Ceratophyllus farreni</i> ,	Rothsch.	(see page 256).

ERRATA.

Page	12,	col. 2,	line 4 from top,	for "Timadra,"	read "Timandra."
"	12,	"	3, " 7	bottom, for "contammana,"	read "contaminana."
"	19,	line 17 from top,	for "example,"	read "example."	
"	44,	"	19 " " "	" <i>spilodactyla</i> ,"	read " <i>spilodactylus</i> ."
"	49,	"	2 " bottom,	for "spain,"	read "Spain."
"	75,	"	19 " top,	" " <i>Amphydasis</i> ,"	read " <i>Amphidasye</i> ."
"	117,	"	25 " " "	" " <i>literata</i> ,"	read " <i>siterata</i> ."
"	142,	"	18 " " "	" " <i>pyrrina</i> ,"	read " <i>pyrina</i> ."
"	181,	"	23 " " "	" " <i>Hypophlæus</i> ,"	read " <i>Hypophlæus</i> ."
"	182,	"	17 " " "	" " <i>Enconnus</i> ,"	read " <i>Euconnus</i> ."
"	204,	"	23 " " "	" " <i>Erigine</i> ,"	read " <i>Erigone</i> ."
"	210,	"	4 " " "	" " <i>maculicollis</i> ,"	read " <i>maculicornis</i> ."
"	210,	"	11 " bottom,	" " <i>A. æthiops</i> ,"	read " <i>E. æthiops</i> ."
"	223,	"	12 " top	" "punctuation,"	read "punctuation."
"	232,	"	1, for "screchnig,"	read "screeching."	
"	232,	"	22 from top,	for "Coreid,"	read "Reduviid."
"	235,	"	21 " " "	" "Mathow,"	read "Mathon."

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In Memoriam.

CHARLES GOLDING BARRETT.

Charles Golding Barrett was born at Colyton, Devon, on May 5th, 1836, the son of an officer in the Inland Revenue Department. He was at first intended for an engineer, and to that end worked for two years as an apprentice at the Coalbrookdale Ironworks, Salop; but in 1856 he entered the Civil Service, his long and honourable career therein being closed by his retirement, from nearly the highest rank in his Department, in April, 1899.

As a boy he was very fond of collecting objects of Natural History, and he appears to have commenced the serious study of our native *Lepidoptera* at about his twentieth year. We find him in August, 1856, sending to the then newly established Entomologist's Weekly Intelligencer (vol. i, p. 165) a record of the occurrence of *Colias edusa* at Forest Hill; and at p. 179 of the same volume is a note by him on *Vanessa c-album* in Shropshire, in which the marked differences between the summer and autumn broods are, we believe, referred to for the first time. An interesting light is thrown on his energetic methods of working in those early days by a note in the "Zoologist" (p. 6215), in which he relates that, after collecting all night in West Wickham Wood, and lying down towards sunrise for a nap under a fence, he was awakened by the gambols of a merry dancing party of *Fumea nitidella* ♂, which had selected his face as their ballroom!

His removal from London to Dublin in 1859 resulted in the thorough working, in company with several other energetic collectors, of Howth and other productive localities near that city; and his sojourn there was signalized by the addition by him to our fauna of such notable species as *Lithosia caniola*, *Dianthæcia capsophila*, the remarkable form of *D. luteago* described by Henry Doubleday as *D. barrettii*, and the beautiful *Gelechia tarquiniella*. A full and very interesting list of his Irish captures appears in the "Zoologist" for 1861 (p. 7799 *et seq.*).

Haslemere, where Mr. Barrett was stationed in 1862, soon became classic ground to our Lepidopterists from his continuous captures of rare and interesting species, among which *Madopa salicalis* deserves a passing notice. Being transferred to Norwich in 1868, the Norfolk Fens and the "Breck" and coast sands afforded a new and most interesting field to his untiring energy, and many notes on their insect

treasures are to be found in our pages. From 1875 to 1884 we find him located at Pembroke, in an entirely unworked district of great promise, hardly however fulfilled; though our collections owe most of their representatives of *Diasemia literalis* and *Eupacilia muschliana* to his fortunate discovery of the habitat and habits of these very rare species.

After a London appointment of not long duration, in 1886 he was transferred to King's Lynn, where he continued to make observations and captures of the greatest interest, among which the virtual discovery, in conjunction with Mr. E. A. Atmore, of the fine *Eupithecia extensaria* as a British species may be specially noted. In 1889 he received an important and responsible post in South London, where, at Nunhead and subsequently at Peckham Rye, the remainder of his busy and active life was passed.

From the first establishment of our Magazine in 1864 Mr. Barrett was a constant contributor to our pages; in fact, his name appears in our "Index" attached to no fewer than 330 separate entries, the last appearing so recently as December, 1904. Among these contributions the "Notes on British Tortrices," which appeared at intervals between 1872 and 1890, and embody the records of many additions to our Fauna, are the most important, and mark an era in our knowledge of this interesting series of moths. His chief work, "The Lepidoptera of the British Islands," was begun in 1892, and the ninth volume, which extends to the commencement of the *Crambites*, was issued last year. This section was completed in the parts since published, and it is with great satisfaction that we learn that the material exists to carry the work to the end of the *Tortricina*, the group which our lamented colleague had made so completely his own. In the preface to Vol. 1 he remarks—"My aim is, not only to furnish original and accurate descriptions of the perfect insects, and the most reliable descriptions obtainable of their larvæ and pupæ, but also such particulars of their habits and ways, drawn from personal experience and the most reliable records, as shall present them to the reader as creatures which enjoy their lives, and fill their allotted positions before they take a more permanent place in the museum or the cabinet."

This is the keynote of the book, which is too well known and esteemed by all Lepidopterists to need further comment, and it exhibits the author in his strongest point, as essentially a field naturalist of the highest type. It was never the good fortune of the present writer to enjoy the company of Mr. Barrett in the field, but the many entomologists who have had that privilege unanimously bear witness to his wonderful powers of work, as well as to his resourcefulness, patience and acumen in tracking the most obscure and retiring species to their

habitat. The candour and generosity with which he placed his vast stores of entomological knowledge at the disposal of all his friends, and his genial, energetic and hearty manner, made him a delightful companion; nor will his unstinted liberality in supplying our collections with the rare and interesting species he so frequently met with be readily forgotten.

In his public no less than in his private life, Mr. Barrett commanded the esteem and affection of all who knew him; and we can here merely allude to the active and disinterested part in the field of religion and temperance which he took throughout his life.

Since June, 1880, he was one of the most valued members of our Editorial staff, and his decease leaves a void that will long be felt by his colleagues. In 1884 he became a Fellow of the Entomological Society, and was a Vice-President in 1901; and in 1892 he was President of the South London Entomological Society.

For some time past the robust health that had for so long stood him in good stead had been failing, and he succumbed to an acute attack of bronchitis, passing away peacefully on the morning of December 11th, 1904. His remains are interred at Forest Hill Cemetery. We understand that his extensive Collections of British, European, and South African *Lepidoptera*—the last received from a sister in Cape Colony, and the subject of some interesting notes in our pages—are to be disposed of.

We are greatly indebted to Mr. C. G. Barrett, of King's Lynn, the eldest son of our departed colleague, to his daughter, Miss L. Barrett, and to the courtesy of the editor of the "Civilian," for material assistance in preparing this notice. —J. J. W.

EDITORIAL.

We have great pleasure in announcing that Mr. GEO. T. PORRITT, F.L.S., has consented to fill the vacancy on our staff caused by the death of Mr. C. G. BARRETT. Mr. PORRITT has for many years past been one of our most esteemed contributors on the Order *Lepidoptera*, and more recently on the *Neuroptera* and *Trichoptera*; and his assistance in these departments of Entomology will, we feel sure, be appreciated by our readers no less than by ourselves.

Hemiptera in Miller's Dale, Buxton, and Sherwood Forest.—In June, 1903, I met with single specimens of *Zizorona carulea*, Linn., and *Pentatoma juniperinum*, Linn. The first was taken on a stone in the brilliant sunshine, and the latter occurred by beating hazel or blackthorn; there is, as far as I can find, no juniper at all in the Dale. At Sherwood, in June of the past year, *Calocoris striatus*, Linn., was tolerably abundant by beating young oaks on the Welbeck side of the forest. I am indebted to Mr. E. Saunders for very kindly determining these insects for me.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: January, 1905.

ON SOME JAVANESE COCCIDÆ: WITH DESCRIPTIONS OF NEW SPECIES.

BY E. ERNEST GREEN, F.E.S.,

Government Entomologist, Royal Botanic Gardens, Peradeniya, Ceylon.

(Concluded from vol. xl, page 210).

LEPIDOSAPHES PINNÆFORMIS, Bouchè.

On *Citrus* (No. 18).

This is the cosmopolitan insect, hitherto generally known as *Mytilaspis citricola*, Pack. Dr. Leonardi has now identified it with the older name of *pinnæformis*, of Bouchè; and Mrs. Fernald, in her "Catalogue of the Coccidæ of the World," shows that *Lepidosaphes* of Shimer has precedence over *Mytilaspis* of Signoret.

LEPIDOSAPHES CRAWII, Ckll.

On *Pterospermum javanicum* (No. 63).

LEPIDOSAPHES LASIANTHI, Green.

On undetermined plant (No. 104).

OPUNTIASPIS JAVANENSIS, *sp. nov.* (fig. 5).

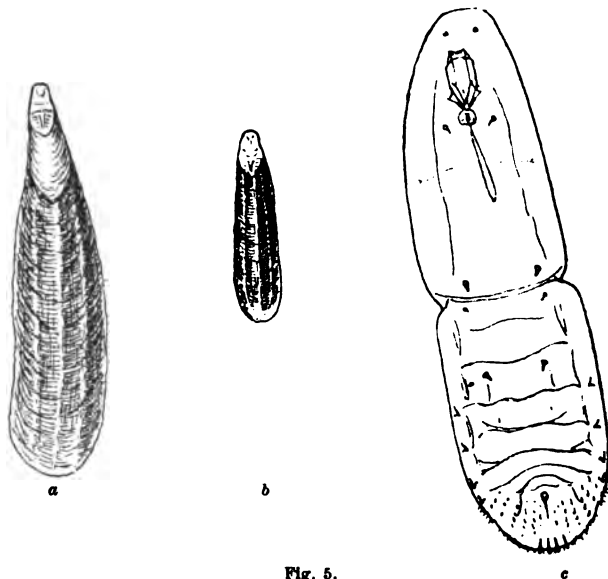


Fig. 5.

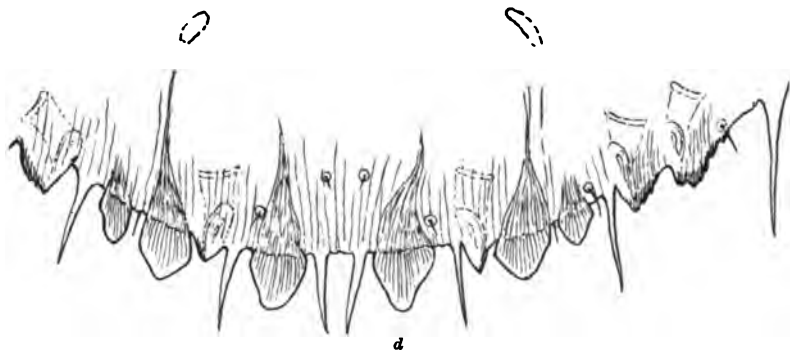
Female puparium (fig. 5a) elongate, narrow; sides subparallel; carinæ not very prominent; margin and posterior extremity flattened. Colour reddish-brown to deep purple-brown; margin and posterior extremity whitish; pellicles reddish.

Length, 3 mm.; greatest breadth, 1 mm.

Male puparium (fig. 5b) similar in form, colour and texture to that of ♀. Posterior third somewhat depressed and concave, as in male puparia of *parlatoria*.

Length, 1.75 to 2 mm.

Adult ♀ (fig. 5c) elongate, narrow; a transverse furrow and deep lateral cleft approximately bisecting the insect, between meso- and meta-thorax. Dorsum chitinous, smooth. Some scattered longish, stout, spiniform hairs on ventral surface of meta-thorax and abdominal segments. Margin of posterior half incurved ventrally, the incurved portion bearing a stout thorn-like process on each segment; a pair of stout chitinous spines on the venter of the mesothorax—close to the transverse furrow, and a second pair on venter of first abdominal segment. A submarginal longitudinal fold on each side. Pygidium (fig. 5d) rounded. Median lobes rather widely



d

separate, small but prominent, conical, slightly constricted at base. First lateral lobe similar in form and size, followed by a smaller lobe, which—though separated from it by a considerable interval—corresponds to the outer lobule of the duplex lateral lobes in *Lepidosaphes* and *Chionaspis*. Other lobes obsolete. Squames spiniform, with dilated bases. No circumgenital glands. Length, 1.50 to 2 mm.

Habitat: on *Agave mexicana* (No. 51).

Differs from *O. philococcus*, Ckll., in the number of the pygidial lobes.

HEMICHIONASPIS ASPIDISTRÆ, Sign.

On *Piper nigrum* (No. 23); and *Uncaria gambir* (No. 88).

HEMICHIONASPIS DRACÆNÆ, Cooley.

On *Pachira aquatica* (No. 50).

CHIONASPIS (PHENACASPIS) VARICOSA, Green.

On *Piper nigrum* (Nos. 23 and 37).

CHIONASPIS (PHENACASPIS) DILATATA, Green.

On *Ficus* sp. (No. 51); *Myristica fragrans* (No. 75); *Hevea brasiliensis* (No. 81); and *Willughbeia* sp. (No. 93).

CHIONASPIS VITIS, Green.

On *Loranthus* sp. (Nos. 72 and 101).

CHIONASPIS HEDYOTIDIS, Green.

On *Mangifera* sp. (No. 77).

CHIONASPIS LITZKE, Green.

On *Cinnamomum zeylanicum* (No. 41).

LEPIDOSAPHES UNGULATA, n. sp. (Fig. 6).

Female puparium dark reddish-brown, margin and pellicles paler. Elongate, narrow, usually sinuous; median area moderately convex, margins flattened; surface dull, obscurely transversely corrugated. Below with a well defined channel for the reception of the body of the insect. Length, 2 to 3 mm.; breadth, 0.8 to 1 mm.

Male puparium smaller; dark brown, with a pale transverse band towards the hinder extremity, at the point where the scale is hinged to facilitate the egress of the winged insect. Length, 1.50 mm.; breadth, about 0.50 mm.

Adult ♀ (fig. 6a), elongate, broadest across abdominal area; the cephalo-thoracic area occupying full two-thirds of the total length. Margins of the four abdominal segments strongly produced and armed with claw-like processes (fig. 6b). The processes on the first abdominal segment merge into



Fig. 6a.

spiniform squames with tubular glands; those on the outer segments appear to be unconnected with glands. Pygidium (fig. 6c) irregularly rounded; median



Fig. 6b.

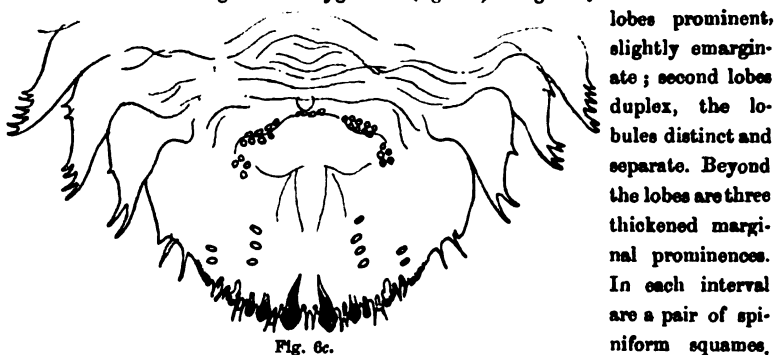


Fig. 6c.

lobes prominent, slightly emarginate; second lobes duplex, the lobules distinct and separate. Beyond the lobes are three thickened marginal prominences. In each interval are a pair of spiniform squames, those on each side of the second lobes situated on a conspicuous marginal process bearing a large pore. Anal aperture at base of pygidium. Circumgenital glands in five groups; median with 3 to 4 orifices; upper laterals with 6 to 9; lower laterals with 4 to 6. Oval dorsal pores in two small series on each side.

Length, 0.75 to 1 mm. Greatest breadth, about 0.40 mm.

Adult ♂ unknown.

On *Syzygium pseudo-jambolanum*.

The remarkable unguiform processes on lateral margins of abdominal segments sufficiently distinguish this from allied species.

ASPIDIOTUS (EVASPIDIOTUS) PUSTULANS, *n. sp.* (Fig. 7).

Female puparium irregularly circular. Moderately convex. Brownish-fulvous. Pellicles concolorous, inconspicuous. Surface dull and roughened.

Diameter, 1 to 1.50 mm.

Male puparium not observed.

Adult ♀ broadly turbiniform. Older examples rather densely chitinous. No

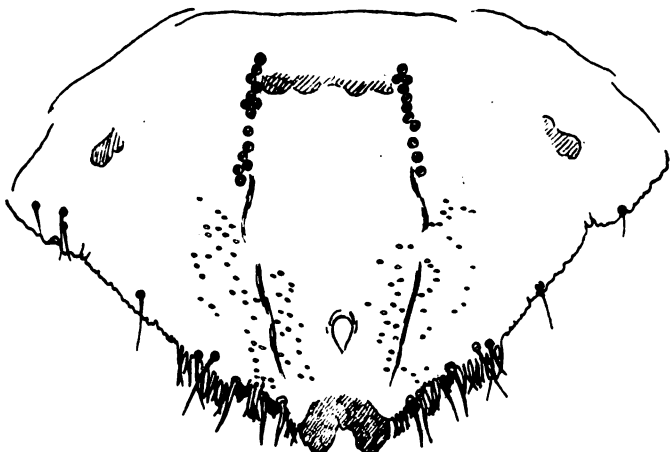


Fig. 7 a.

parastigmatic glands. Pygidium (fig. 7 a) with median lobes large, stout and prominent, irregularly and obscurely excised. Two lateral lobes on each side, small

with broad base and aciculate apex (fig. 7 b). Squames numerous, stout; some obscurely furcate, others spini-form; extending along margin for some distance beyond the lobes. Spines long, stout and conspicuous. Circum-genital glands in four groups; upper laterals 8 to 11; lower laterals 3 to 6. Dorsal pores numerous, minute crowded. Length, 0.80 to 1.10 mm Breadth, 0.75 to 1 mm.



Fig. 7 b.

On *Erythrina lithosperma*, the scales occupying shallow pits in the surface of the bark.

AONIDIA JAVANENSIS, *n. sp.* (Fig. 8).

Female puparium subcircular, posterior extremity slightly pointed; occupied almost completely by the large second pellicle with a very narrow secretory border. First pellicle rather strongly convex, centrally placed. Colour, dull reddish-brown; the first pellicle outlined with fulvous. Diameter, about 1 mm.

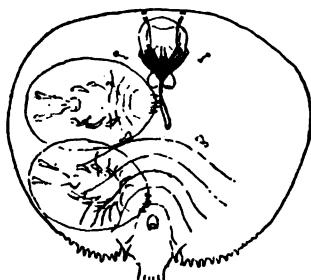


Fig. 8 a.

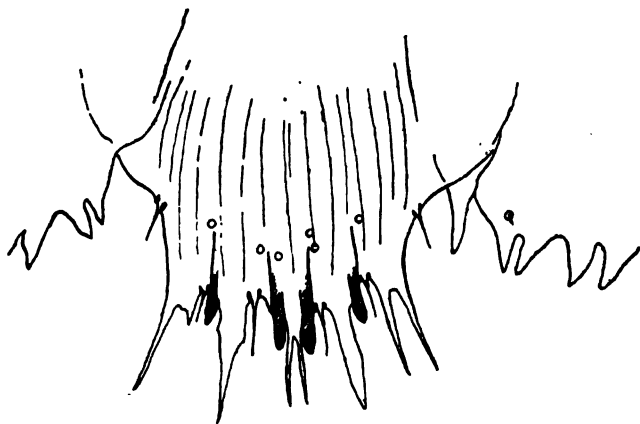


Fig. 8 b.

the margin is produced into long lanceolate processes, varying in size and form in different examples.

Long diameter, 0.50 to 0.65 mm.

On under-surface of leaves of *Myristica fragrans*; the scales disposed along the midrib and prominent veins of the leaf.

EXPLANATION OF FIGURES.

Fig. 1.—*Lecanium tenebricophilum*.

(a) Section of *Erythrina* branch, with insects *in situ*. Nat. size.

(b) Adult female, $\times 4$.

(c) Spiracle of female, greatly enlarged.

(d) Derm of female, greatly enlarged.

(e) Plates of anal operculum, greatly enlarged.

Fig. 2.—*Pulvinaria mazima*.

(a) Marginal spines, $\times 650$.

(b) Antenna, $\times 150$.

Fig. 3.—*Ceroplastes cirrhipediformis*.

Stigmatic spines, $\times 650$.

Fig. 4.—*Aspidiotus curculiginis*.

Extremity of female pygidium, greatly enlarged.

Fig. 5.—*Opuntiaspis javanensis*.

- (a) Female puparium, $\times 17$.
- (b) Male puparium, $\times 17$.
- (c) Adult female, ventral view, $\times 40$.
- (d) Extremity of female pygidium, $\times 650$.

Fig. 6.—*Lepidosaphes unguolata*.

- (a) Adult female, $\times 80$.
- (b) Margin of abdominal segment, $\times 480$.
- (c) Pygidium, $\times 200$.

Fig. 7.—*Aspidiotus pustulans*.

- (a) Pygidium of female, $\times 200$.
- (b) Margin, showing lateral lobes, $\times 600$.

Fig. 8.—*Aonidia javanensis*.

- (a) Adult ♀, $\times 75$.
- (b) Pygidium, $\times 650$.

DRAGON-FLY HUNTING IN EASTERN SWITZERLAND.

BY KENNETH J. MORTON, F.E.S.

(Concluded from page 4).

The weather had now become settled and very hot, and the 8th saw us back for the day to near Zürich, our destination being the Oerlikon Riet, including the River Glatt, and our special quarry the *Gomphinae* and *Somatochlora flavomaculata*. Taking the train to Glattbrugg, our course led us along the banks of the Glatt for a stretch, then over the Riet to Oerlikon Station. The Glatt is here a slow stream with corrected course. On either side of it stretch tracts of marshy meadow with little clumps of wood, an ideal locality for *Neuroptera*. Perhaps in no other place did we see so many dragon-flies. It is no exaggeration to say that *Calopteryx splendens* must have existed in thousands on the short reach of the river which we traversed. I have hardly ever witnessed a prettier sight than these multitudes of lovely dragon-flies. A female never took flight without having half-a-dozen or so male attendants in her train, and these curious little processions were constantly flitting about the river. Not less numerous, but less conspicuous, was *Platynemis pennipes*. *Anax imperator* was present in fair numbers, each patrolling his special section steadily, except when a wandering *Gomphus* provoked the tyrant to a chase. A worn ♀ of *A. parthenope* was taken; it had probably flown from the Metmenbasler See. The Gomphids were not common and were difficult to catch, the difficulty being enhanced in no small degree by the relentless attacks of *Tabani*

which swarmed in the long herbage along the river bank. One of the first seen was *Ophiogomphus serpentinus*, the most beautiful of the European Gomphids, and quite different from the others on account of its exquisite green coloration. The species was not at all frequent, and it was the most wary, only one being secured by Dr. Ris. *Onychogomphus forcipatus* was not quite so rare, and a few good males were caught, while *Gomphus vulgatissimus*, quite unexpectedly, put in an appearance. One or two *Platetrum depressum* were noticed at a small lateral stream. But *Somatochlora flavomaculata* outnumbered all the other larger dragon-flies; every corner along the margins of the wood, and almost every small clump of bushes gave shelter to a ♂ which was not as a rule difficult of capture. One of the striking features of the Glatt marshes was *Papilio machaon*, which was flying about in splendid examples of the second brood.

Our last excursion in the low country was to the Hauser See a pretty lake near Ossingen (about 1360 feet s. m.), and distant from Rheinau about $5\frac{1}{2}$ miles. The walk was sufficiently long in the intense heat. When we were still some distance from the lake, a few *Orthetrum brunneum* appeared flying over the road. Entering the shaded paths in the woods surrounding the lake, we found them alive with *Limenitis sybilla*. I have never seen it before in such numbers, but they were nearly all much worn and we had no time to spare to select them. So we left them alone, as we also did *Apatura iris*, which once or twice tempted us to linger, and we very soon reached the lake. This is one of the localities where the great prize *Epiheca bimaculata* is to be found, but we were of course too late for it. Amongst the first species seen were *Somatochlora metallica* flying along the margin, and a little farther on one or two *Libellula fulva*, together with a ♂ *Sympetrum sanguineum*. But we hastened on to the corner for *Leucorrhinia*, only to find that in this early season we were too late. *L. albifrons* was still present and a few pairs were taken, but of *L. pectoralis* only one ♂ was seen and taken by Dr. Ris, who handed it over to me with his usual generosity, which extended to everything of any value that was found. *L. caudalis*, which also occurs here, was evidently quite over. The usual complement of small dragon-flies was obtained, including *Pyrrosoma tenellum*, and on going round to the other side of the lake we found *Gomphus pulchellus* common, but worn. *Orthetrum cancellatum* was again present, but I found this species one of the most difficult of all to catch. Leaving the lake proper, a little marshy meadow was visited for *Lestes dryas*, of which we got a few, and the same locality

produced a few *Æschna grandis*. By this time the woodland paths were quite gloomy, and stealing along them *Æ. cyanea* was taken. An unusual capture on the way home was *C. ænea* flying along the road.

On the following morning we reluctantly bade adieu to our good friends at Rheinau and proceeded to Chur, whence we drove to Lenzerheide, a health resort, situated between Churwalden and Tiefencastel, at an elevation of about 4800 feet. Here we remained until July 18th. It looked an excellent locality for *Neuroptera*, possessing a fine lake, the Heidsee, and an abundance of running waters. The weather which had been hot and cloudless in the low country, changed when we reached the Alps, and for a day or two thunder storms and heavy rain prevailed to a degree that was rather depressing. In the fitful gleams of sunshine we saw few dragon-flies; odd examples of *Somatochlora*, a ♀ *S. alpestris* being taken, *Orthetrum coerulescens*, *Libellula quadrimaculata*, *Leucorrhinia dubia*, and *Enallagma cyathigerum*. These gave very little promise of what was in store for us. Finally, after a terrific storm, the morning broke cool and cloudless, giving promise of a fine day. The forenoon will long be remembered. A stretch of boggy land on the side of the stream, just after it leaves the lake, was found to be alive with *Somatochlora*, and here during the next few days beautiful series of *S. alpestris* and *S. arctica* were caught. On the quiet portion of a lateral streamlet and at the lake a few *S. metallica* were found, but here this species was scarcer than the other two. *Æschna juncea* proved to be common also, and *Cordulegaster annulatus* was seen during the last two days, but it was still rare, and I failed to get more than one ♂.

Our next move was over the Julier Pass to Silvaplana. We had no difficulty in making out, from the excellent maps with which Dr. Ris had provided us, where the most likely localities were to be found. Crossing to the other side of the Silvaplana See and going through the woods in the direction of Campfer, we soon found the Lej Nair, and here and on the marshes surrounding it we discovered once more the haunts of the lovely alpine Cordulines. *Somatochlora metallica* was particularly abundant and an easy capture as it hawked round the margins of the lake. An interesting form of *Calopteryx splendens* occurred rarely here, very similar to that which I found at Digne, and much closer to the southern form than the one occurring about Zürich. *Æ. juncea* was exceedingly common, and was noticed even at the Hannen See (7000 feet), the only dragon-fly seen there.

Still more productive than Lej Nair was another smaller lake at a somewhat lower level near Campfer. *S. arctica* and *alpestris* were not taken there, although they may quite well occur, but *S. metallica*, *L. dubia*, *Æ. juncea*, *Agrion puella* and *hastulatum*, and *E. cyathigerum* (the last two being also found at Lej Nair) were all more or less abundant. In the woods *Sympetrum meridionale* and *S. striolatum* were frequently seen; and one day near Silvaplana I believe I saw *P. depressum*. The only species which should have been found and was not, was *Æ. cœrulea*, which was taken by Mr. McLachlan at the Staatzer See. It must surely be much rarer in the Alps than in the boreal parts of Europe.

At Silvaplana our dragon-fly hunting ended. We went on to Maloja and Chiavenna on the 25th, and after visiting Como proceeded over the Splügen to Thusis, thence home by way of Zürich and Basel. Excepting a Cordulid noticed flying about the pier at Varenna and a few examples of *Sympetrum* in the Val Bregaglia and elsewhere, no more dragon-flies were seen.

The total number of species observed on our journey was 45. The first rush of dragon-fly life was over before we reached Switzerland. *Brachytron pratense* had absolutely disappeared, the *Libellulas* and *Leucorrhinias* were practically over, while the time of *Sympetrum* and *Lestes* had not yet fully come. One or two additional species might have been obtained by visiting special localities, but we were well content with the results which could scarcely have been achieved if we had not had the good fortune to be under such experienced and painstaking guidance. The following is a complete list of the species seen:—

Leucorrhinia pectoralis, Charp.; *L. dubia*, Vanderl.; *L. albifrons*, Burm. *Sympetrum striolatum*, Charp.; *S. meridionale*, de Sélys; *S. fonscolombii*, de Sélys; *S. sanguineum*, Müll.; *S. scoticum*, Donov. *Platetrum depressum*, L. *Libellula quadrimaculata*, L.; *L. fulva*, Müll. *Orthetrum cœrulescens*, F.; *O. brunneum*, Fosc.; *O. cancellatum*, L. *Cordulia sena*, L. *Somatochlora metallica*, Vanderl.; *S. alpestris*, de Sélys; *S. flavomaculata*, Vanderl.; *S. arctica*, Zett. *Onychogomphus uncatus*, Charp.; *O. forcipatus*, L. *Ophiogomphus serpentinus*, Charp. *Gomphus vulgatissimus*, L.; *G. pulchellus*, de Sélys. *Cordulegaster annulatus*, Latr. *Anax imperator*, Leach.; *A. parthenope*, de Sélys. *Æschna cyanea*, Müll.; *Æ. juncea*, L.; *Æ. grandis*, L.; *Æ. isosceles*, Müll. *Calopteryx virgo*, L.; *C. splendens*, Harris. *Lestes dryas*, Kby.; *L. sponsa*, Hans. *Platynemis pennipes*, Pallas. *Erythromma najas*, Hans. *Pyrrhosoma nymphula* Sulz.; *P. tenellum*, Vill. *Ischnura elegans*, Vanderl. *Enallagma cyathigerum*, Charp. *Agrion pulchellum*, Vanderl.; *A. puella*, D.; *A. hastulatum*, Charp.; and *Nehalennia speciosum*, Charp.

13, Blackford Road, Edinburgh :
September, 1904.

SILVANUS MERCATOR, FAUVEL, A SPECIES OF COLEOPTERA
NEW TO BRITAIN.

BY J. R. LE B. TOMLIN, M.A., F.E.S.

In the Ent. Mo. Mag., 1896, p. 261, Mr. Champion predicts the eventual discovery of *Silvanus mercator*, Fauv., in Britain. He has recently identified some specimens which I received from Mr. E. A. Atmore as this species. It may easily be recognised from *S. surinamensis*, L., by the small size of the temples, which are two-thirds of the diameter of the eyes in the latter species, whereas they are only one-fifth in *S. mercator*.

A dichotomous table of the genus will be found in the article cited above. My specimens were found in a bakery at King's Lynn, Norfolk.

Chester : January, 1905.

ALGERIAN MICROLEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM M.A., LL.D., F.R.S., &c.

(Continued from Vol. XL, p. 273).

3040 : 1.—*SYMCOCA PONEBIAS*, sp. n.

Antennae brownish fuscous. *Palpi* white, the median joint suffused with brownish fuscous externally nearly to its apex. *Head* hoary white. *Thorax* pale creamy ochreous. *Forewings* pale creamy ochreous, sprinkled sparsely with rust-brown scales, with three groups of brownish fuscous scales along the costa and one before the apex; the first costal spot is at the base, with a rust-brown dot at its lower edge; the second at one-third, rather triangular, with a small rust-brown spot at its apex; the third at two-thirds, a little beyond a rust-brown transverse streak at the end of the cell, below which is another rust-brown spot on the dorsum, a smaller one lying just below the middle of the fold; the base of the pale ochreous cilia is also dusted with rust-brown beyond the apical fuscous spot. *Exp. al.*, 12—13 mm. *Hindwings* cilia and *Abdomen* rather dark grey. *Legs* whitish ochreous.

Type, ♂ (96348). Mus. Wlsm.

Hab.: ALGERIA—Hammam-es-Salahin, 18.IV—17.V.1903. Three specimens taken on the hills above Hammam-es-Salahin in early morning.

Closely allied to *tofossella*, Rbl., but distinguished by its white head, its more rusty coloured forewings and less conspicuous spots.

3043 : 1.—*SYMCOCA CALIDELLA*, sp. n.

Antennae pale yellowish ochreous. *Palpi* dull white, smeared externally, nearly to the apex of the median and on the terminal joint, with pale brownish

fuscous. *Head* and *Thorax* dull white. *Forewings* dull white, minutely sprinkled and sparsely spotted with pale brownish fuscous; the ill-defined spots are formed by aggregation of the otherwise scattered pale fuscous scales and are, first a small streak at the base of the costa, reduplicated below and beyond; secondly a subcostal spot at one third, then a spot at the end of the cell, preceded by one a little beyond the middle of the fold, with another, subcostal, a little before the apex; there are one or two marginal dots before the dirty white cilia which are also slightly dusted. *Exp. al.*, 11—12 mm. *Hindwings* and cilia brownish grey. *Abdomen* brownish grey. *Legs* dirty white.

Type, ♂ (96543); ♀ (96546). Mus. Wlsm.

Hab.: ALGERIA—Hammam-es-Salahin, 13.IV—18.V.1903; Biskra, 11—30.IV.1908. Twelve specimens.

Although in general appearance this species does not look distinct and cannot easily be separated by description from *cedestiella*, Z., and *sparsella*, de Joann., it is more robust than the former and lacks the median fascia, and it is a more chalky looking species with greyer markings than the latter. It is really quite distinct when series of each are compared.

3043 : 2.—SYMMOCA OBLITERATA, *sp. n.*

Antennae hoary grey. *Palpi* hoary white, dusted with greyish fuscous. *Head* hoary grey. *Thorax* hoary whitish, dusted with greyish fuscous. *Forewings* hoary greyish white, profusely speckled with greyish fuscous throughout, this is for the most part evenly distributed, but a line along the centre of the wing appears to be somewhat less obscured by the dark speckling, while a reduplicated transverse spot at the end of the cell is slightly indicated, a plical and another discal spot scarcely to be detected, their possible position being shown only by a slight increase of the dark dusting in each place; cilia hoary grey. *Exp. al.*, 11—13 mm. *Hindwings* bronzy grey, with brownish cinereous cilia. *Abdomen* bronzy greyish fuscous, anal tuft paler. *Legs* hoary greyish.

Type, ♂ (96534). Mus. Wlsm.

Hab.: ALGERIA.—Biskra, 25.III—2 IV.1903; Hammam-es-Salahin, 8—23.IV.1904, 17.V.1903. Thirty-one specimens.

Flies low in the early morning on rather bare ground. It has much the appearance of *Eremica saharae*, but is of a greyer colour and without any indication of transverse markings, its shading, if any, being always longitudinal.

3043 : 3.—SYMMOCA MOLITOR, *sp. n.*

Antennae pale brownish, hoary whitish towards the base. *Palpi* hoary whitish, the median joint shaded with black below towards its apex, the terminal with a black annulation before its apex. *Head* and *Thorax* hoary white, the latter with a black spot posteriorly. *Forewings* rather narrow, elongate, tapering to an obtusely rounded apex; hoary white, profusely sprinkled with black atoms which have a tendency to run in lines, especially along the upper edge of the cell, and from the

cell outward to the apex and termen; cilia brownish white. *Exp. al.*, 15 mm. *Hindwings* shining, brownish grey; cilia shining, pale brown. *Abdomen* brownish grey at the base, shading to pale brown posteriorly. *Legs* pale brownish cinereous.

Type, ♂ (96548). Mus. Wlsm.

Hab.: ALGERIA — El-Kantara, 27.IV. — 22.V.1903. Three specimens.

Perhaps most nearly allied to *obliterata*, but it is a larger species.

311.—APROAEREMA, Drnt.

= * *ANACAMPSIS*, Stgr.-Rbl. (nec Crt.).

2840 : 1.—APROAEREMA ZONABIELLA, *sp. n.*

Antennae black, with pale ochreous annulations not meeting on the upper side. *Palpi* pale ochreous, with two black lines along the terminal joint throughout. *Head* dark greyish fuscous; face ochreous. *Thorax* black. *Forewings* black, sparsely sprinkled with pale ochreous scales, which are slightly grouped in the fold a little beyond its middle and on the disc above and beyond; at the outer third of the wing-length is a straight, clearly defined, pale ochreous fascia, its outer edge somewhat jagged; cilia smoky brown, with some black scales projecting in their base. *Exp. al.*, 16 mm. *Hindwings* grey, with a brownish tinge; cilia smoky brown. *Abdomen* smoky fuscous. *Legs* brownish fuscous, with two tibial and four tarsal pale ochreous annulations.

Type: ♀ (96464). Mus. Wlsm.

Hab.: ALGERIA—Batna, 1.V.1903. Unique.

A very distinct species.

2840 : 2.—APROAEREMA MITRELLA, *sp. n.*

Antennae fuscous. *Palpi* hoary white, tipped with black. *Head* and face hoary grey. *Thorax* bronzy fuscous. *Forewings* elongate, acutely lanceolate; bronzy fuscous at the base, darkening to deep brownish fuscous towards the middle, clearly and straightly defined along the inner edge of a white transverse fascia, somewhat expanded outward from the dorsum to the costa; beyond this the dark brownish fuscous colouring is continued to the apex with bright shining pale steel-grey scales, each tipped with black, radiating outwards along the margins at the base of the brownish grey cilia. *Exp. al.*, 10 mm. *Hindwings* leaden grey; cilia pale brownish grey. *Abdomen* dark leaden grey, with pale anal tuft. *Legs* whitish, the ends of the tibiae and the terminal joints of the tarsi banded with brownish fuscous.

Type, ♂ (96467). Mus. Wlsm.

Hab.: ALGERIA—Biskra, 23.III; El-Kantara, 22.IV.1903; Hammam-es-Salahin, 13.IV.1904. Three specimens.

Has much the appearance of *acanthyllidis*, but is a little larger and darker.

2847 : 1.—*APROAEREMA ACANTHYLLIDIS*, *sp. n.*

Antennae white beneath, black speckled with white above; basal joint slightly flattened and enlarged. *Palpi* white. *Head* and face white. *Thorax* olive-brown. *Forewings* pale olive brown at the base, shading to brownish fuscous a little beyond the middle, where this colour is abruptly terminated by a straight whitish ochreous fascia, narrow on the dorsum, wider and somewhat diffused outward above it to the oosta; this fascia is of varying intensity, and in some varieties is almost entirely obliterated by a suffusion of the blackish scales which predominate usually beyond it on the apical fourth: the black scales in ordinary varieties are sprinkled thickly on olive-brown, and accompanied by shining steely metallic scales, each tipped with black, which extend through the base of the grey cilia. *Exp. al.*, 8-9 mm. *Hindwings* with produced apex and deeply excised termen; pale bluish grey; cilia brownish grey. *Abdomen* brownish grey. *Legs* shining, brassy whitish, with a fuscous band at the end of the hind tibiae.

Type, ♂ (89469); ♀ (89475); var. ♂ (89470). *Mus. Wlsm.*

Hab.: ALGERIA—Biskra, 5.II.1897, 1-30.III.1894, 19-29.V. 1894 (*Eaton*); 20.II-9.III.1903; El-Kantara, 5.V.; Hammam-es-Salahin, 23.III-25.IV.1904, 14.V.1903; Larva *Acanthyllis tragacanthoides*, 5.I. excl. 6-15.III.1904; 17.IV. excl. 12.V.1904 (*Wlsm.*). Forty-one specimens.

This species is abundant, and widely distributed among isolated plants of *Acanthyllis tragacanthoides*, from which I have since bred it; there would appear to be at least two broods. Mr. Eaton first met with it in 1894.

It is closely allied to *captivella*, Z., but differs in the outward widening of the fascia.

The genus *Aproaerema* is described as having in the forewings "6 sometimes out of 7 near base" (*Meyr., Busck.*). This definition would exclude *acanthyllidis* (and perhaps other species) in which 6 is emitted from the stalk of 7 and 8 near their furcation, moreover in some specimens (*c. g.*, 5854) 9 is sometimes connate with (6+7+8) or even stalked with them—thus, in this species at least, vein 9 is variable, being emitted from the radius before the end of the cell, connate with, or out of (6+7+8). In the hindwings 2 and 3 are connate from the end of the cubitus above which the cell is open; part of the discoidal occurs above lower media, emitting 5 angularly; 6 and 7 are stalked from radius to near apex. At first one would have felt inclined to make this species the type of a new genus, but it seems wiser to slightly extend the definition of *Aproaerema* to include such species as are obviously in a plastic condition, the variation being individual, not special.

2847 : 2.—*APROAEREMA THAUMALEA*, *sp. n.*

Antennae blackish, sprinkled with white. *Palpi* smooth, white, terminal joint as long as the median, with two slender lines of black scales throughout its length. *Head* greyish white; face shining white. *Thorax* cream-white, shaded with steel-grey. *Forewings* shining copper-brown, with a broad cream-white costal patch from the base nearly to the middle, produced outward at its lower extremity nearly to the outer end of the fold, its attenuated apex not reaching the dorsum; at the outer third a broad transverse cream-white fascia, throwing an angulated projection outward at its middle, and attenuated to the dorsum before the tornus, its inner edge clearly defined and slightly outward-curved; beyond it the coppery brown terminal area is thickly studded with brilliant steel-like scales, each narrowly tipped with jet-black, many of these project into the dull leaden grey cilia (recalling the form of the neck feathers of a *Thaumalea*). *Exp. al.*, 8-9 mm. *Hindwings* as broad as the forewings, the apex much produced from the deeply excised termen; whitish grey; cilia pale brownish grey. *Abdomen* shining steel-grey. *Legs* white, with slight tarsal spots, a single fuscous spot on the outer side of the tibiae.

Type, ♂ (98504). Mus. Wlsm.

Hab. : ALGERIA—Hamam-es-Salahin, Larva *Astragalus gombo*, 10.III—27.IV. excl. 15.IV.—14.V.1904; 15.V. excl. 1-13.VI.1903. Ten specimens.

This very distinct species agrees with *acanthyllidis* in emitting 6 and 9 of the forewings from the stalk of 7 + 8.

(To be continued).

SUFFOLK LEPIDOPTERA IN 1904.

BY THE REV. E. N. BLOOMFIELD, M.A., F.E.S.

I am again able to record a good number of interesting species taken in the County during the past season. For these I am indebted to the following correspondents, who have sent me lists of the rarer species taken by them and the localities in which they occurred. The Rev. A. P. Waller records captures at Hemley near Woodbridge, Messrs. H. Lingwood at Needham Market and Dunwich, Claude Morley at Barham and Blakenham, A. E. Gibbs at Orford, and Dr. Crowfoot near Beccles. Mrs. Mann, of Bungay, has sent me a full list of all the species met with by her in 1904 at Bungay and Flixton, and has also sent a list of the rarer species which had been taken by her in previous years, thus adding considerably to the County List. Both Mr. Waller and Mrs. Mann have made great use of their moth traps, and have taken many good insects in them.

Mr. C. G. Barrett, as usual, has most kindly confirmed or determined most of the Micros, Mr. Waller having sent him all that seemed doubtful; while he has also determined various species for Mrs. Mann.

Of the *Heterocera* I need only mention *Acherontia atropos*, L., at Hollesley, *Sphinx pinastri*, L., bred by Mrs. Mann from ova received from Aldringham, **Deilephila livornica*, Esp., taken at Felixstowe, September 1st, by G. P. Hope, Esq., Havering Grange, Romford, it had apparently just emerged from the pupa, *Charo-campa porcellus*, L., at Hemley and Bungay, **Nola centonalis*, Hb., one at light at Hemley, July 21st, *N. strigula*, Schiff., at Flixton, six specimens in 1902, *Lithoria quadra*, L., at Lowestoft, and *Petasia cassinea*, Hb., at Bungay.

The rarer *Noctux* to be recorded are **Leucania favicolor*, Barr., a beautiful specimen of the red variety taken at Hemley, September 10th, at light. Mr. Waller first met with it in 1893, and took several in 1901, but it was then supposed to be a red form of *L. pallens*, and was not recorded. *L. obsoleta*, Hb., Needham Market, *Nonagria geminipuncta*, Hatch., three at sugar at Hemley, *Charxas graminis*, L., several on ragwort flowers by day at Orford, *Neurina reticulata*, Vill., two at sugar at Hemley, *Miana arcuosa*, Haw., Bungay, *Agrotis agathina*, Dup., Dunwich, *Trachea piniperda*, Esp., Hemley and Needham Market, **Dasyoampa rubiginea*, F., two at Needham Market in the spring. Spring *Noctux* seem to have been rather plentiful at fallows. *Tethea retusa*, L., Bungay, August 9th, in the moth trap, *Dianthacia conspersa*, Esp., several at Bungay and Lowestoft, **Plusia moneta*, F., one in the garden at Bungay, this species was taken some years ago at Battisford, but was not recorded, *P. festuæ*, L., in abundance in Mrs. Mann's garden, *Catocala frasini*, L., p. 256 ante, and *Toxocampa pastinum*, Tr., at Lowestoft.

Of the *Geometræ* the best are *Pericallia syringaria*, L., several at Hemley, usually rare, *Ennomos fuscantaria*, Haw., Needham Market, *Acidalia emutaria*, Hb., one, and *Corycia taminata*, W. V., in plenty, both at Bungay, *Eupithecia venosata*, F., larvæ in the heads of Bladder Campion at Hemley, also at Bungay, *Lobophora viretata*, Hb., Hemley, August 13th, *Campptogramma fluviala*, Hb., July 22nd, and *Anticlea derivata*, W. V., both at light at Bungay, *Coremia quadrifasciaria*, L., several at Hemley, usually very scarce there, *Cidaria sagittata*, F., Bungay, *C. picata*, Hb., several, and *Eubolia lineolata*, W. V., one in the moth trap at Hemley.

Pyalides—*Pyalis costalis*, F., at Bungay, *Cledeobia angustalis*, W. V., at Orford, *Acentropus niveus*, Oliv., two, June 8th, and **Scoparia resinea*, Haw., in 1902, at Bungay.

Pterophori—*Platyptilia gonodactyla*, Schiff., and *Leioptilus lienigianus*, Zell., at Hemley, and *L. microdactylus*, Hb., at Bungay.

Crambi—**Crambus alpinellus*, Hb., one at light, and *C. falsellus*, W. V., at Hemley, the latter also at Bungay; *Schænobius forficellus*, Thumb., *S. mucronellus*, F., W. V., in numbers in moth trap, *Rhodophæa formosa*, Haw., and *Ephestia fuscicollis*, Barr., 1901, all at Bungay; *R. marmorea*, Haw., Hemley, one at light, and five at light at Bungay, *R. suavelia*, Zinck., and *R. advenella*, Zinck., also at Bungay.

Tortricæ—*Tortrix diversana*, Hb., one at Hemley, **Leptogramma literana*, L., a fine grey variety at Bungay in 1903, *Peronea comparana*, Hb., several at light, and *Spilonota lariciana*, Zell., at Hemley, *Sericoris lacunana* var. **herbana*, Gn., at Beccles, and *Orthotænia antiquana*, Hb., not uncommon at light at Bungay, *O. striana*, W. V., at Hemley, *Pediasca sordidana*, Hb., at Bungay, *Retinia pinicolana*, Dbl., at Orford, *Dichrorampha saturnana*, Gn., and *Eupæcilia vectisana*, Westw.,

flying abundantly one afternoon in the salt marshes, at Hemley, **E. geyeriana*, H.-S., *E. degreyana*, McLach., and **E. ciliella*, Hb., 1902, all at Bungay.

Of the *Tineæ* I have a good list, of which many are new to the County. **Epigraphia steinkellneriana*, Schiff., at Bungay, 1902 and 1903, **Psyche* (*Epichnopteryx*) *reticella*, Newm., noticed by Mr. Waller among Marram grass near the river at Hemley in 1903 and again this year, a notable species; **Scardia arcella*, F., at light at Hemley and at Bungay, *Tinea lapella*, Hb., Bungay and Shadingfold, near Beccles, *T. semifutrella*, Haw., and *Swammerdamia comptella*, Hb., at Hemley, *S. spiniella*, Hb., at Bungay. **Plutella porrectella*, L., the pale green larvæ were abundant feeding on the Sweet Rocket in the Rectory Garden at Hemley, the moths in June and August, also at Bungay, **Hyponomeuta vigintipunctatus*, Rotz., Bungay, several in the moth trap, 1901-04, **Anexychia decemnotella*, Hb., 1901. **Harpiteryx scabrella*, L., 1902, **Orthotelia sparganella*, Thun., 1901-02, **Depressaria yeatiana*, F., **D. pulcherrimella*, Stn., at Bungay; *Gelechia muscosella*, Zell., Beccles, 1903, *G. (Bruchmia) mouffetella*, Schiff., and **G. (Lita) fraternella*, Dougl., at Bungay, *G. (Iseia) fugitivella*, Zell., at Hemley, **G. (Doryphora) lutulentella*, Zell., and *G. laniatella*, Tr., Bungay, *G. (Nannodia) hermannella*, Fb., Hemley and Blakenham chalk pit, *G. (Ceratophora) rufescens*, Haw., and *Chelaria hübnereella*, Don., at light, at Hemley and Bungay, **Argyresthia mendica*, Haw., Barham and Bungay, **A. curvella*, L., **Coleophora fabriciella*, Vill., in the moth trap, both in 1903, and **Laverna ochraceella*, Curt., at Bungay, the latter also at Orford, *Chrysoclysta flavicaput*, Haw., and *Elachista laticornella*, Zell., at Hemley.

The species marked * are new to the Suffolk List.

Guestling Rectory, Hastings :
December, 1904.

Leucania favicolor, Barr., and *Epichnopteryx reticella*, Newm., in Suffolk.—The late Mr. Barrett had intended to send a special note on the extension of locality of these two species in Suffolk, but was prevented by his last illness; this he was about to do, "because *Leucania favicolor* has only been found in S. E. Suffolk and N. E. Essex, where these counties join, while *Epichnopteryx reticella* has occurred from Devon to Essex, but not hitherto in Suffolk or Norfolk." As Mr. Waller took his specimen of *L. favicolor* on September 10th it would seem that there was probably a second brood; his former captures were made in June and were large specimens.—E. N. BLOOMFIELD, Guestling Rectory: Dec., 1904.

Notes on a light-trap in Hertfordshire.—With reference to Mrs. H. E. Munn's note (*ante*, p. 10) on a moth-trap used at Ditchingham, Suffolk, I may mention that as recorded in the Entomologist from time to time, I have used a trap here for some years. Since 1898 I have designed and constructed four traps, the present one being an improvement on all the others. Like the "Mandair" mine is not fitted with any killing apparatus, so that any specimens not required can be liberated in the morning.

At this one locality I have captured by this means over 300 different species of *Lepidoptera* (including only a few *Tineæ* as I have not worked that group), comprising 4 *Sphingæ*, 29 *Bombyces*, 109 *Noctuæ*, 90 *Geometræ*, 70 *Pyrallides*, *Crambi*, *Tortricæ*, &c.

My trap is fitted to a first floor window, about 14 ft. from the ground and facing south-west. In this direction the ground slopes away from the house, and beyond the garden there are several fields and then woods.

The want of success with some traps is that they are placed too near the ground. I do not think that 20 ft. would be too high for the majority of species. The light should of course be as strong as possible. I generally use a large duplex lamp with strong reflector.

On one occasion I captured over fifty specimens of *Anchocelis lunosa* in a single night, most of which were of course set free in the morning.

Among the better species taken the following may be named: *Chærocampa porcellus*, *Sarothrips undulatus*, *Hylophila bicolorana*, *Lithosia griseola*, *Trichiura cratægi*, *Lasiocampa quercifolia*, *Drepana lacertula*, *D. binaria*, *Noto-donta dictæoides*, *Pygæra curtula*, *Thyatira batis*, *Dipterygia scabriuscula*, *Lupe-rina cespitis*, *Apamea gemina*, *A. unanimitis*, *A. ophiogramma*, *Agrotis puta*, *A. cinerea*, *A. porphyrea*, *Tæniocampa gracilis*, *Orthosia suspecta*,* *Xanthia gilvago*, *Calymnia pyralina*, *C. diffinis*, *C. affinis*, *Hadena genista*, *Asteroscopus sphinx*, *Plusia moneta*, *P. pulchrina*, *Arentia flexula*, *Eurymene dolobraria*, *Pericallia syringaria*, *Selenia lunaria*, *Geometra papilionaria*, *Spilodes palealis*,* *Acipitilia spilodactylus*, *Crambus geniculatus*, *Euzophora pinguis*, *Phycis betulæ*, *Rhodophea formosa*, *R. advenella*, *Hypochalcia ahenella*, *Galleria melonella*, *Aphomia sociella*, *Penthina ochroleucana*, *Carpocapsa splendana*, *Xanthosetia zægana*, *X. kamana*, &c.

The two marked with an asterisk have not been recorded from any other localities in Hertfordshire.

I shall be very pleased to compare notes and diagrams with any other entomologists who have had experience with moth-traps in other parts of the country.—
PHILIP J. BARRAUD, Bushey Heath, Herts: January 3rd, 1906.

The attitude of Satyrus semele at rest.—In the summer of 1903 Dr. Dixey called my attention to the observation by E. H. A. in "A Naturalist on the prowl" (p. 203) that *Melanitis ismene*, Cram., a common Indian butterfly, often settled upon fallen leaves and helped to conceal itself by falling partly on one side. Dr. Dixey was anxious to see whether there was among allied butterflies any tendency to such a habit upon which natural selection might work. Careful watching *Satyrus semele* satisfied us that it settles upon the ground "in three motions"—(1) the wings are brought together over the back; (2) the fore-wings are drawn between the hind-wings, so as to be for the most part concealed; (3) the whole insect is thrown over to one side to the extent of 30°, 40°, or even sometimes 50°. They appeared to go over to right or left indifferently.

Subsequently I imprisoned a number of butterflies in a large pasteboard box covered with a piece of glass. Under these conditions I observed that sometimes the third of the above described motions precedes the second. The insects assume the sideways attitude or "list" more frequently when settled in sunshine than in shadow—of this I am certain. This attitude is mentioned in Barrett's *Lepidoptera* (vol. i, p. 226).

Other Satyrids were observed in the same box. *Epinephele janira* often put on a list of 15° to 20°; *Pararge ægeria* and *megæra* sometimes showed a "list" of 25°. Lastly, during the summer of 1904 several *R. hyperanthus*, when in the box, showed a "list" of about 20°

My observations on Indian Satyrids will be found in a paper read before the Entomological Society of London, December 7th, 1904, which will I hope appear in the Transactions for 1905.—G. B. LONGSTAFF, Highlands, Putney Heath, S.W.: January 11th, 1905.

Harpalus discoideus, F., and *Metacus paradoxus*, L., at Leighton Buzzard.—In a recent number of the Ent. Mo. Mag. (April, 1904), the capture of a black ♂, *Harpalus discoideus*, is recorded by Mr. Jennings from Brandon.

As bearing upon the variation in the colour of the male of this rare beetle, as well as for other considerations of interest, it may be well to give a few particulars of its appearance here.

During the past July, August, and September, I have succeeded in taking in this neighbourhood twenty-four examples of the ♂, together with which I was present when two or three more were taken by my brother, Mr. L. R. Crawshaw, and it is interesting to note that all without exception were bright green in colour. Nor does Canon Fowler in his "British Coleoptera" mention the black form of the ♂. I may add that ♀s occurred in about equal proportions to the ♂s, together amounting to fifty specimens. I do not know whether *H. discoideus* has previously been recorded from this part of Bedfordshire, though Canon Fowler mentions Woburn, 9 miles distant, and Sandy, on the other side of the county, as localities.

As to its habitat here, it seems to be partial to a cultivated sandy soil rather than heaths and poor sandy places, for, although my search for it had previously been directed especially towards the latter, two specimens only occurred there, while the remainder were taken on the borders of three different ploughed fields in which the remains of manure were visible, and which were occupied at the time by crops of a late potato. Mr. C. O. Waterhouse kindly looked over half of these specimens and confirmed them.

Of *Metacus paradoxus*, L., one specimen, a ♂, beaten from a birch bush by my brother, Mr. L. R. Crawshaw, on September 3rd, 1902, revealed the presence of this species of beetle in the neighbourhood of Leighton Buzzard.

In 1903 further casual beating was without success. This year I resolved to search for it in wasps' nests, and met with the following results.

Out of five nests examined, four (*Vespa vulgaris*, Linn.), contained *Metacus* in one stage or another of its existence, together with larvæ, pupæ, and imagines of wasps.

In the fifth nest (*Vespa germanica*, Fab.) from which the beetle was absent, all the cells but six had been vacated by the wasps, and nearly all the community were gone. The nests were situated on the borders of a wood, within three quarters of a mile of each other, and of the place where the original ♂ had been discovered.

The following particulars of these nests may be interesting:—

Community.	Destroyed.	Estimated number of wasps present.	<i>Metacus paradoxus</i> present.
No. 1.— <i>Vespa vulgaris</i> , Linn.	Sept. 20th.....	5257.....	24 { 1 larva. 16 pupæ. 7 imagines.
No. 2.— <i>Vespa germanica</i> , Fab.	Sept. 20th.....	150.....	None.
No. 3.— <i>Vespa vulgaris</i> , Linn.	Oct. 4th.....	1500.....	9 { 3 pupæ. 6 imagines.
No. 4.— <i>Vespa vulgaris</i> , Linn.	Oct. 4th.....	300.....	1 pupa.
No. 5.— <i>Vespa vulgaris</i> , Linn.	Oct. 13th.....	2036.....	1 imago.

In some cases many of the wasps had left the community, and with them presumably most of the beetles, the latter being on the wing early in September. The imagines of *Metacox* present were enclosed in sealed cells, and some of them seemed to have been dead some time. Nor do I think there remained sufficient warmth in the season to develop any of the pupæ.

On completing the digging out of the nearly empty comb of *Vespa germanica* on September 29th, nine days after the community had been destroyed, I observed a beetle on the wing, which I recognised as *Metacox*, hovering round the trunk of an oak close to the wasps' nest. I knocked it down with my hat and captured it, a ♂. My brother then observed a ♀ on the same tree. She was searching the bark with her ovipositor and paused apparently to lay, though we did not see any eggs, for the bark contained deep crevices in which presumably they would be hidden if there were any. This ♀ my brother captured.

On October 4th, on revisiting the spot, I observed another ♀ *Metacox* resting on the same tree on which the first was taken five days previously.

She did not appear to be laying or making any movement. The day was cold. Upon examination she appeared to me to have laid her eggs already for the abdomen was rather small and contracted. She died two days afterwards without laying in confinement.

It seems likely that both these ♀s laid at least a portion of their eggs on this tree, i.e., on living bark. Their close proximity to the nest of *Vespa germanica* would not be enough to establish any connection between them for, 100 yards away, was a nest of *Vespa vulgaris*, in which *Metacox* was subsequently found, and whence the three beetles in question may have come. — GEORGE A. CRAWSHAY, Leighton Buzzard: November 9th, 1904.

Tetratoma fungorum, F., at Sherwood Forest.—In the third week of October last I took a considerable number of this fungus-feeding beetle; they all occurred either on the under-side of *Boleti* growing on birch, or in the root where the *Boletus* joins the tree. All were found on this year's growth of fungi; the most diligent search, however, completely failed in finding any trace of either larva or pupa in the old growth. Should this insect be a desideratum of any Coleopterist I shall be much pleased to supply specimens.—J. KIDSON TAYLOR, 35, South Avenue, Buxton: December 24th, 1904.

Clinocara tetratoma, Thoms., in Derbyshire.—On June 11th, 1904, I beat out of hazel, in Miller's Dale, a single specimen of this rather uncommon species; on the same day, also by beating hazel, an example of *Polydorus micans* occurred to me. Of the former the only record for this district appears to be Repton, Burton-on-Trent (Garneys); and of the latter, Bretby Wood, Repton (Canon Fowler's British Coleoptera).—ID.

The flight of Rhizotrogus solstitialis, Linn.—With regard to the flight of *Rhizotrogus solstitialis*, L., referred to by Dr. Norman Joy (*ante* p. 17) in his interesting contribution to our knowledge of the habits of the rarer *R. ochraceus*, Knoch, I may mention that our commoner chafer also not infrequently flies by day

and often towards the close of the afternoon. In some years, during June and July "summer chafers" are very common in East Dorset, and are eagerly chased by poultry, which are very partial to them, and soon become adepts in their capture of them as the insects skim along a foot or so above the ground. I referred to this circumstance in notes to (I think) the "Naturalist's Journal," 1899, and "Science Gossip," January, 1900. I am unaware whether the chafers also circle round trees, high up, as described by Mr. Joy, but they would probably be found to do so.—E. J. B. SOPP: *January, 1905.*

Limotettix stactogala, Fieb., at Ryde.—The tamarisk bushes on the front at Ryde, I. W., contained this species in the greatest profusion, as I was enabled to observe from September 25th to October 9th this year, though a cursory examination of the same plant in similar situations at Cowes on October 8th failed to reveal a single individual. At the former locality the insect could be counted in its thousands; a thick hedge half a mile long was often covered with them, but their colour so well assimilated with that of their pabulum that they were quite inconspicuous. They often, I noticed, congregated in groups of eight or ten, and were on several occasions found *in cop.*; one spider's web, an inch and half in diameter, contained eleven examples. They appear to prefer the base of the outermost, though not the highest, shoots, and fly freely in the sunshine. On the later date, after a biting northerly breeze, their numbers were less, though their vitality appeared to have been but very slightly impaired. Mr. E. A. Butler, who first detected it in Britain (*cf.* Ent. Mo. Mag., 1902, p. 215), tells me that it was absolutely swarming where he found it, and that he expects it occurs in most places where tamarisk grows—though I have failed to find it in Suffolk.—CLAUDE MORLEY, Monks' Soham, Suffolk: *December, 1904.*

Schizoceros furcatus, Vill., at Chattenden Roughs.—Mr. Morice, when kindly looking over my saw-flies a short time ago, detected a specimen of this rare insect, taken by me at Chattenden Roughs in June, 1896, but overlooked until now. As its present occurrence in Britain has been doubted by him in his "Help Notes" he asked me to record it. My specimen is a male. An example (male) of the other species (*geminatus*, Gir.) was taken by Mr. Morice himself this spring when collecting with me on May 25th. It was sitting on the hedge in the valley below my house where so many rare insects have occurred.—A. J. CHITTY, Faversham: *January 1st, 1905.*

Limnophilus elegans in the Isle of Man.—In a box of *Trichoptera* recently sent to me for determination by Dr. R. T. Cassal, and taken by him in the Isle of Man during last season, I was delighted to see three specimens (all males) of the rare *Limnophilus elegans*. Dr. Cassal had taken them near Ballaugh, in the northern part of the Island, during the first fortnight in June. Old recorded localities for the species are the New Forest and Delamere Forest, but in recent years it seems only to have been taken at Rannoch, and there very sparingly. Its occurrence in the Isle of Man is very interesting.—GEO. T. PORRITT, Huddersfield: *Jan. 14th, 1905.*

Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *October 17th, 1904.*—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. J. T. Fountain showed *Callimorpha dominula*, L., from Devon, and gave an account of his difficulties in breeding them. Though treated in various ways he failed to find any way by which to avoid getting the greater portion crippled. He also showed *Lasiocampa quercus*, L., bred from larvæ taken in Sutton Park in March and April. They included light males and also dark ones, which were apparently var. *callunæ*, Palm.; also there were two of the dark ones with very diaphanous wings, though evidently perfect and with complete cilia to the wings, yet they looked as if rubbed, owing apparently to deficient scaling on the outer third of each wing. Mr. H. W. Ellis, a collection of *Rhynchophora*, &c., and gave a general account of them, and referred to the local records. Mr. R. C. Bradley, *Thriptocera bicolor*, Mg., three specimens bred from *Lasiocampa quercus* larvæ, from Sutton Park, by Mr. W. H. Williamson in 1904.

November 21st, 1904.—The President in the Chair.

Mr. A. H. Martineau exhibited from Mr. H. Stone, F.L.S., a collective cocoon made by some Lepidopterous larvæ. Information was lacking as to the species and its place of origin. It consisted of one large cocoon about 6" x 4", with a thick, hard brown integument containing a considerable number of ordinary brown cocoons massed inside. The pupæ were empty, but there was no obvious means of exit, and the interior was closely packed with the material of the cocoons so that it was not easy to judge how the moths had emerged. Mr. B. S. Searle showed Lepidoptera from various localities and a box of foreign Coleoptera. The Rev. C. F. Thornehill read a paper upon "The Genus *Eupithecia*, especially in relation to Breeding them from the Larvæ." He had given special attention to the genus and had reared a large proportion of the species at various times, and he gave a good deal of interesting information about the life-histories and habits of many of the species.—COLBRAN J. WAINWRIGHT, *Hon. Secretary.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—By the kindness of the Chester Society of Natural Science, an ordinary meeting was held in the Grosvenor Museum, Chester, on Monday, November 21st, 1904. Mr. RICHARD WILDING, Vice-President, in the Chair.

The following gentlemen were elected Members of the Society: Messrs. C. M. Adams, F.C.S. (Southport), Rd. S. Bagnall, F.E.S. (Winlaton-on-Tyne), J. H. Leyland (Ormskirk), W. C. Boyd (Cheshunt), John F. Dixon-Nuttall (Prescot), Rd. Hancock (Handsworth), and E. E. Lowe (Plymouth).

Mr. Robert Newstead, A.L.S., F.E.S., Hon. F.R.H.S., gave a most interesting lecture on "The Collections in the Grosvenor Museum," copiously illustrated with lantern slides; and, through the kindness of Mr. Newstead, the whole of the Museum was open to the inspection of Members, and the more interesting exhibits were explained by him. Amongst interesting exhibits examined during the evening were a living specimen of the male of *Lecanium hesperidum* shown by Mr. Newstead. This he had recently bred from a colony of Coccids which had been under observa-

tion for the past three or four years; the example being the first authentic one observed, although the male had been searched for since the time of Linnæus. Mr. J. J. Richardson exhibited a series of exotic *Lepidoptera* mounted in frames, with slips of glass so arranged as to allow of the examination of the under-sides. Mr. J. R. Charnley, F.E.S., showed 14 specimens of insects in amber from the North Coast of Germany, both the insects and clearness of some of the pieces of amber being much admired. *Anisotoma furva* from Crosby was exhibited by Mr. Wilding, and a selection of British *Lepidoptera* by Mr. W. Mansbridge, F.E.S., &c. — E. J. B. SOPP and J. R. le TOMLIN, *Hon. Secretaries*.

ENTOMOLOGICAL SOCIETY OF LONDON: *Wednesday, December 7th, 1904.*—
Professor E. B. POULTON, M.A., D.Sc., F.R.S., President, in the Chair.

Mr. Horace A. Byatt, B.A., of the Colonial Office, and Mr. J. C. Winterscale, F.Z.S., of Karangan, Kedah, Penang, Straits Settlements, were elected Fellows of the Society.

Mr. H. St. J. Donisthorpe exhibited *Quedius nigrocervuleus*, taken by Mr. H. C. Dollman in a rabbit hole at Ditchling, Sussex, this being the fourth recorded British specimen. Professor T. Hudson Beare, a specimen of the rare Longicorn, *Tetropium castaneum*, L., taken about two years ago in the vicinity of the quays at Hartlepool, and probably introduced. Mr. G. J. Arrow, a series of *Passalidæ* from the Burchell Collection mentioned in his paper recently read before the Society, and remarked that Burchell had at the time of their capture some seventy years ago already noted their powers of producing a musical sound. Mr. C. O. Waterhouse, drawings prepared for exhibition in the Natural History Museum illustrating the development of the front wing in the pupa of the Tusser Silk Moth, showing the relation of the tracheæ to the veins; also some coffee berries from Uganda injured by a small beetle belonging to the *Scolytidæ*, and two Coleopterous larvæ from the Burchell Collection from Brazil, submitted to him for determination by Prof. Poulton. One was a Heteromerous larva two inches long, much resembling the larva of *Helops*; the more interesting one was noted by Burchell to be luminous, and appeared to be the larva of an Elaterid. Mr. J. J. Walker, the type-specimen of *Haplothorax burchelli*, G. R. Waterhouse, from the Hope Collection, Oxford University Museum, a remarkable Carabid discovered by Burchell in St. Helena; it is now exceedingly rare in its sole locality, the late Mr. Wollaston, during his visit to the island in 1875-6, having entirely failed to find the beetle alive, though its dead and mutilated remains were often met with. The President, cases showing the results of breeding experiments upon *Papilio cenea* conducted by Mr. G. F. Leigh, who had for the first time bred the *trophonius* form from *trophonius* itself; also a photograph, taken by Mr. Alfred Robinson of the Oxford University Museum, showing the Xylocopid model and its Asilid mimic exhibited by Mr. E. E. Green at a previous meeting; the example was particularly interesting, inasmuch as Mr. Green's record of the mimic circling round its model tended to support the view that the bee is the prey of the fly.

Dr. T. A. Chapman read a paper on *Erebia palarica*, n. sp., and *Erebia stygne*, chiefly in regard to its association with *E. evias* in Spain; describing *Erebia palarica*, he said it was a new species from the Cantabrian range, phylogenetically a

recent offshoot of *E. stygna*, and the largest and most brilliant in colouring of all the known members of the family.

Dr. G. B. Longstaff gave an account of his entomological experiences during a tour through India and Ceylon, October 10th, 1903, to March 10th, 1904, illustrating his remarks by exhibiting some of the insects referred to, and lantern slides of the localities visited.

Wednesday, January 18th, 1905: THE 71ST ANNUAL MEETING—The President in the Chair.

After an abstract of the Treasurer's accounts, showing a good balance in the Society's favour, had been read by one of the Auditors, Mr. Herbert Goss, one of the Secretaries, read the Report of the Council. It was then announced that the following had been elected Officers and Council for the Session 1905-1906. President, Mr. Frederic Merrifield; Treasurer, Mr. Albert H. Jones; Secretaries, Mr. H. Rowland-Brown, M.A., and Commander James J. Walker, R.N., F.L.S.; Librarian, Mr. George C. Champion, F.Z.S.; and as other Members of the Council, Mr. Gilbert J. Arrow, Lieut-Colonel Charles Bingham, F.Z.S., Dr. Thomas A. Chapman, F.Z.S., Mr. James Edward Collin, Dr. Frederick A. Dixey, M.A., Mr. Hamilton H. C. J. Druce, F.Z.S., Mr. Herbert Goss, F.L.S., Mr. William John Lucas, B.A., Professor Edward B. Poulton, D.Sc., F.R.S., Mr. Louis B. Prout, Mr. Edward Saunders, F.R.S., F.L.S., and Colonel John W. Yerbury, R.A., F.Z.S.

The President referred to the loss sustained by the Society by the deaths of the Treasurer, Mr. Robert McLachlan, F.R.S., Mr. Charles G. Barrett, and other Entomologists. He then delivered an Address, in which he discussed the part played by the study of insects in the great controversy on the question, "Are acquired habits hereditary?" He argued that the decision whether Lamarck's theory of the causes of evolution is or is not founded on a mistaken assumption largely depends upon evidence supplied by the insect world, and finally concluded that the whole body of facts strongly supports Weismann's conclusions. At the end of his Address the President urged that the study of insects is essential for the elucidation and solution of problems of the widest interest and the deepest significance. Prof. Meldola, F.R.S., proposed a vote of thanks to the President and other Officers; this was seconded by Mr. Verrall, and carried.—H. Goss, *Hon. Secretary*.

LIST OF BRITISH *DOLICHOPODIDÆ*, WITH TABLES AND NOTES.

BY G. H. VERBALL, F.R.S.

(Continued from vol. xi, page 245).

1. *H. gracilis* Stann.: this large and very distinct species occurred in abundance in Wicken Fen in July, 1875, and I have found it also at Tuddenham and Brandon, both of which are within a few miles of Wicken. Away from this neighbourhood I have taken it at Penzance in Cornwall and at Ravenglass in Cumberland.
2. *H. crotifer* Walk.: not uncommon in Cornwall and in the Lake District.

3. *H. germanus* Wied. : I cannot satisfactorily distinguish this at present from the next species, but I believe they are two distinct species, and that both occur in Britain.
4. *H. chærophylli* Meig. : a small common species, which often occurs in abundance on the flowers of *Umbelliferae*.
5. *H. nigriplantis* Stann. : the only place where I have found this is Snailwell in Cambridgeshire, where it used to be not uncommon from June to September on a wooden sluice down which water was running. Col. Yerbury has taken one specimen at Porthcawl in Glamorgan, and Mr. C. G. Lamb one at Wells in Somerset.
6. *H. nigripennis* Fall. : a small blackish species, with a rather long proboscis, very similar to *Orthochile*, but its proboscis is not nearly so long as that of *Orthochile*. Common from Cornwall to the Highlands of Scotland.
7. *H. chrysozygos* Wied. : this very pretty and very distinct species was abundant at Wicken in July, 1875, even occurring in ditches close to "The Five Miles from Anywhere." I have since taken it at Chippenham Fen, and even on a window in this house.
8. *H. plagiatus* Lw. : I introduced this species as British on a specimen taken at Abbey Wood in Kent on July 24th, 1870, and a few specimens have since occurred at Upware and Tuddenham near here.
9. *H. fulvicaudis* Walk. : this still remains recorded as British from only a single male found near Bristol, and taken probably at least 70 years ago ; that is, however, the specimen from which the species was originally described. It has since been recorded as not uncommon in Germany, and I possess several specimens from Mecklenburg, while Kowarz has recorded it from Hungary.
10. *H. atrovirens* Lw. : I caught one male at Footscray in Kent on July 7th, 1869, and Dr. D. Sharp took a female in the New Forest in June, 1902.
11. *H. parvilamellatus* Macq. : I took a few specimens at Blackboys in Sussex on June 15th, 1876.
12. *H. nanus* Macq. : various localities in Sussex, Surrey, Cambs., Suffolk and Norfolk.

9. *HYPOPHYLLUS* Lw.

- 1 (2) Front tarsi with last joint very much dilated 1. *discipes* Ahr.
 2 (1) Front tarsi simple 2. *obscurus* Fall.
1. *H. discipes* Ahr.: I caught a male in July, 1880, which is labelled "Snailwell ?." I do not know why I put the ?, as I believe I know exactly where I took it; possibly it is the date which is doubtful. I caught a female at Bowness in Westmorland on June 23rd, 1889, which almost certainly belongs to this species.
2. *H. obscurus* Fall.: easily recognised by its long yellow genitalia. It has occurred in numerous localities from Slapton Leigh to Inveran.

10. *ORTHOCHILE* Latr.

- O. nigrocærulea* Latr.: I took a pair at Leigh in Essex on June 18th, 1871, and a male at Lee in Kent on June 15th, 1875; more recently I took a specimen at Wicken on June 27th, 1903, and Mr. F. Jenkinson has taken several specimens in and near Cambridge.

11. *GYMNOPTERNUS* Lw.

All the species have black postocular cilia and black fringed squamæ.

- 1 (2) Femora mainly blackish; middle tibiæ thickened and twisted at tip...
 1. *cupreus* Fall.
- 2 (1) Femora yellow, or almost so.
- 3 (4) Costa dilated on a streak near base 2. *celer* Meig.
- 4 (3) Costa normal.
- 5 (8) Moderate sized species.
- 6 (7) Antennæ wholly black; blackish-green species..... 3. *metallicus* Stann.
- 7 (6) Antennæ pale at extreme base; steel-blue species... 4. *chalybæus* Wied.
- 8 (5) Small species.
- 9 (10) Face white 5. *assimilis* Stæg.
- 10 (9) Face black 6. *ærosus* Fall.
1. *G. cupreus* Fall.: a common species, easily known by its black femora, and the peculiar dilated and twisted tip of the middle tibiæ of the male.
2. *G. celer* Meig.: also a common species, easily recognised by the costa of the male being swollen for a rather long space near the base.
3. *G. metallicus* Stann.: I first found this in abundance in Epping Forest on June 16th, 1872, and I have since taken it in Sussex, Suffolk, and Norfolk.

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Queensland, illustrating the use of "directive" markings in the Rhopalocera in influencing their enemies to attack non-vital parts. Mr. G. J. Arrow, an example of *Ceratopterus stahli*, Westw., a beetle from Australia possessing notable powers of crepitation. Mr. A. H. Jones and Mr. H. Rowland-Brown showed a series of *Erebia alecto* (*glacialis*), var. *nicholli*, Oberth., taken by them at about 8000 ft. at Campiglio, South Tyrol, with specimens of *Dasydia tenebraria*, var. *wockearia*, caught in the company of the *Erebias* in the same localities. Mr. Jones also exhibited examples of *Erebia melas* from the Parnassus Mountains, Greece, for comparison, and fine forms of butterflies found at Mendel, near Botzen. Mr. W. J. Kaye, a series of bred *Morpho adonis* from British Guiana, with the very rare dimorphic black-and-white female. Dr. F. A. Dixey, the social web and pupal shells of *Eucheira socialis*, Westw., together with specimens of the perfect insect, being the actual nest from Mexico described and figured by Westwood in the Transactions for 1836. The President read a note on experiments conducted by him to ascertain the vitality of pupæ subjected to submersion. Mr. H. A. Byatt, read a paper on "*Pseudacraea poggei* and *Limnas chrysippus*; the Numerical Proportion of Mimic to Model." Mr. G. Bethune-Baker contributed "A Monograph of the Genus *Ogyris*."—H. ROWLAND BROWN, *Hon. Secretary*.

ALGERIAN MICROLEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.

(Continued from page 41).

2848 : 1.—*APROAEREMA DEVERRAE*, sp. n.

Antennae black, annulate with pale ochreous. *Palpi* whitish ochreous, the terminal joint with a black line along it and a black ring before its apex. *Head* whitish ochreous. *Thorax* yellowish ochreous. *Forewings* at the base yellow-ochreous, a narrow line of black scales along the costa, another on the upper edge of the cell, below which the cell itself is pale whitish ochreous; from a little beyond the remainder of the wing-surface is thickly suffused and speckled with black, the black scales being concentrated in an elongated spot on the middle of the wing, followed by a smaller one at the end of the cell, with some indication of a third in the fold below the first; the ground-colour underlying the black speckling is pale whitish ochreous, as on the upper half of the cell from the base, and is fairly conspicuous on the small patch at the commencement of the costal cilia and in another opposite to it on the dorsum; a line of black scales runs through the whitish ochreous cilia which are also dusted with black at their base. *Exp. al.*, 18 mm. *Hindwings* bluish grey; cilia pale brownish grey. *Abdomen* shining steely grey. *Legs* whitish ochreous, the tarsi shaded with black.

Type, ♂ (88773); ♀ (97119). Mus. Wlsm.

Hab.: ALGERIA—El-Kantara—5.VII.1903; Hammam-es-Salahin, Larva *Deverra scoparia*, 22.I. excl. 23.IV.—10.VIII.1904. Twenty-two specimens.

Two larvæ found feeding in stems of *Deverra* (*Pituranthos*) *scoparia* on May 8th, the type emerged on July 5th, 1903.

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In Memoriam.

J. W. DOUGLAS.

JOHN WILLIAM DOUGLAS, the son of David Douglas, of Tranent, near Edinburgh, was born at Putney on November 15th, 1814. He was educated at a private school, remaining there until he was fifteen, when he sustained a very serious injury, the result of a thoughtless practical joke of one of his schoolfellows. He was returning home on November 5th with a pocket full of crackers, which his schoolfellow set alight; they exploded and burnt his thigh so severely that he had to keep his bed for two years. During this time he turned his attention to Botany, drawing the specimens he collected with great facility, and becoming so keen on his subject, that when convalescent he applied for and obtained employment at Kew in order that he might have the benefit of the best botanical teachers. He was at Kew only for a few years, as his father, with the help of Lady de Grey's influence, obtained for him a situation in the Customs House, where he rose to a high position, retiring at the age of seventy, after more than fifty years' service. Mr. Gladstone before introducing his bill dealing with duties on light wines sent him on a continental tour to report on the various grape cultures, and on his return personally thanked him, and gave him a special Treasury grant of £100.

The heavy cicatrix formed by his severe burn necessitated numerous operations throughout his life, and the enforced leisure enabled him to gain a proficiency in German and French, which proved of extreme value to him, both in his official and Entomological capacities.

He married in 1848, residing at first at Camberwell, but afterwards for many years he lived at Lee and Lewisham.

He began collecting insects when at Kew, and published his first paper in the Entomological Magazine for 1837, entitled, "Random Thoughts on Entomology." For many years his attention was chiefly directed towards the *Lepidoptera*, although he published papers on *Coleoptera* and other Orders. Most of his early writings on *Lepidoptera*, &c., are to be found in the pages of the Entomologist's Weekly Intelligencer, and many of the younger generation of Ento-

mologists must look back with gratitude to his kindness and assistance. "The World of Insects, a Guide to its Wonders," was published in 1856, and he rendered very important assistance in the production of Stainton's "Natural History of the Tineina," in which his name appears as a coadjutor. Another, and perhaps the work by which his name will be best remembered, was published by the Ray Society in 1865, "The British Hemiptera, Vol I, *Hemiptera-Heteroptera*." In this he was a joint author with the late John Scott. It opened the eyes of British Entomologists to the large field of little known forms which existed in this interesting Order, and Douglas and Scott's "British Hemiptera" will always be regarded as a classical work in this country. At the time it was written the *Hemiptera* of Britain were practically unworked, and all Entomologists owe a great debt of gratitude to the Authors of the "British Hemiptera" for the excellent foundation which they laid, and also to Dr. Fieber, of Vienna, for the assistance he rendered in determining many of the unknown species. Additions and corrections to this book were from time to time published in the Entomologist's Monthly Magazine, of which he became an Editor in 1874, and to which for many years he was a constant contributor. In the early days of the Entomological Society he was a very active member. He joined the Society in 1845, became a Member of the Council in 1846, Secretary from 1849 to 1856, and President in 1861. He retired from the Society in 1862, but rejoined it in 1876, continuing as a Fellow to his death. The writer of this will always have an affectionate memory of the kindness of the deceased to himself; he often had occasion to consult him on questions connected with the determination of specimens, and always met with the greatest kindness. On one occasion he borrowed the type specimen of a Capsid, the identity of which he had called in question, and whilst in his possession, one of his children finding a nice looking little box, put some pens into it and shook them up, with the natural result that the specimen was broken to atoms. Any one can imagine the writer's feelings when he had to go and confess what had happened; but the situation was accepted in the kindest way, and without a touch of reproach. For the particulars of the early life of the deceased we are indebted to his son, Mr. Charles D. Douglas.

It is many years since J. W. Douglas took an active part in Entomology, and many of the younger Entomologists of to-day may hardly realize how much he did for their Science; but those who knew him feel that another link with the past, and an important one, has been broken.—E. S.

TETROPIUM sp. ? AT LEIGHTON BUZZARD.

BY THE REV. GEORGE A. CRAWSHAY, M.A., F.E.S.

A black form of *Tetropium* has occurred here this summer in some numbers, and I take the present opportunity of briefly recording the first appearance in this district, so far as I am aware, of any member of the genus.

It will be well to leave the question of its identity open for the present.

On comparing my beetle with the two long series of *Tetropium* in the British Museum I remarked that it was different in general appearance from these species. At the same time, in consideration of the variation in form, coloration, punctuation, and pubescence, to which the different members of the genus seem liable, I took the nearest description I could find to my insect, a very brief one by Ganglbauer (Best. Tab. der Europ. Col.), and sent the beetle out to Coleopterists as a *Tetropium*, nearest to *T. castaneum*, L., var. *fulcratum*, F. At the same time not feeling satisfied with this, viewed in the light of my long series of nearly 200 individuals presenting no appreciable variation in their external structure and coloration, and, thinking that my beetle might be a different species from any I had seen, I referred it to M. Bedel, who informed me that Weise had lately described a new species of *Tetropium*, and that it agreed with the specimen I had sent him. I have accordingly communicated with Herr Weise. Mr. Atmore's two recorded specimens (Ent. Mo. Mag., April, 1904), taken prior to mine, and a hitherto unrecorded specimen, taken at Elsfield, Oxfordshire, by Mr. J. J. Walker, shortly after mine (June 26th, 1905) appear to me, judging from their external structure and coloration, to be identical with the Leighton Buzzard form.

Subsequently hearing that Dr. Sharp is engaged in investigating the genus, I have placed all my material at his disposal, confident that I leave the matter in able hands. I hope, in a forthcoming issue of the Magazine, to deal, at some length, with the capture and life history of the imago and larva, by which time it seems probable that Dr. Sharp will have determined what it is.

I am indebted to Mr. W. Holland for informing me that my first specimen belonged to the genus *Tetropium*.

Leighton Buzzard :

September 12th, 1905.

[In reference to Mr. Crawshay's note I should like to say that great difficulty exists as to the species of *Tetropium* both in Britain and on the continent. I am endeavouring to elucidate this, and should like to be able to examine the specimens of the genus that may exist in British collections. I have before me specimens of *Tetropium* taken near Manchester in 1865, and I think I can say with a fair confidence that we have two, if not three, species in England. Weise has just described a *T. gabrieli* from Switzerland, Germany, &c. Mr. Crawshay's insect is either *T. gabrieli*, Weise, or a closely allied form. If the second alternative prove to be correct I propose to call the Leighton form *T. crawshayi*.—D. SHARP.]

[*T. gabrieli*, Weise (Deutsche ent. Zeitschr., 1905, p. 136), from the Lower Engadine (Tarasp), Tyrol, and Silesia, is said to differ from *T. fuscum*, F., and *T. luridum*, L. (= *castaneum*, L.), in having the frons somewhat convex and not canaliculate. I have taken various specimens of what I suppose to be *T. fuscum* in the Engadine (at Guarda, near Tarasp) and on the Simplon; some of these have the frons canaliculate, and in others the groove is wanting.—G. C. C.]

BARIS (LIMNOBARIS) T-ALBUM, LINN., AND *B. PILISTRIATA*, STEPH.

BY G. C. CHAMPION, F.Z.S.

J. Sahlberg [Acta Soc. Pro Fauna et Flora Fennica, xix, 3, pp. 22, 23 (1900)] separates *Baris T-album* into two species, *B. T-album*, L., and *B. martulus*, Sahlb. These two forms occur in Britain, and were described by Stephens [Mand., iv, p. 10 (1831)]. They may be separated thus:—

Larger and more elongate, the elytral interstices irregularly uniseriate-punctate, especially towards the suture, the punctures each bearing a rather long, coarse, decumbent, whitish hair *pilistriata*, Steph.

(= *T-album*, Sahlb., nec Linn.).

Smaller, more glabrous above, the prothorax a little more transverse, the elytral interstices regularly uniseriate-punctate, the punctures each bearing a short, fine, decumbent, whitish hair *T-album*, Linn.

(= *atriplicis*, Steph., *martulus*, Sahlb.).

I have seen *B. pilistriata* from various southern localities, Sheppey, Faversham, Arundel, Woking, Wicken, &c., and *B. T-album* from Bearstead, Snodland, Oxford, Scarborough, Aviemore, and Nethy Bridge, the latter apparently being the most widely distributed (Stephens gives near London, Bristol and Suffolk for

B. pilistriata, and Battersea fields, Hertford, Norfolk, Somerset and Crwmllyn Bog for *B. atriplicis*). M. Bedel informs me that they are sometimes found together in France, *B. pilistriata* alone occurring in Algeria. Stephens, it may be noted (Manual, p. 216), subsequently treated the larger insect as a "fine" form of *B. T-album*. His name *pilistriata* appears to have been overlooked by Sahlberg and others, and it is not quoted as a synonym in the last European Catalogue. The Linnæan description applies better to *B. T-album* than it does to *B. pilistriata*, and there is no valid reason for transposing the names, if the two forms are to be treated as distinct.

Horsell: August 26th, 1906.

ZEUGOPHORA FLAVICOLLIS, MARSH., AND ITS VARIETIES.

BY G. C. CHAMPION, F.Z.S.

There are various discrepancies in the published descriptions of this species, mainly due to Marsham's work not having been consulted. Canon Fowler, for instance (Col. British Islands, iv, p. 280), says that it has the posterior femora fuscous, whereas in the insect described by Marsham, and figured by Stephens, the legs are wholly reddish-yellow. Weise, too (Naturg. Ins. Deutschl., vi, p. 58), makes the same mistake, and his variety *australis* (femoribus posticis rufiflavus), to which all the British specimens I have seen belong, is simply typical *Z. flavicollis*, Marsh. The common form on the continent, at least in mountainous districts, has the posterior femora black or blackish. According to Bedel (Faune Col. Bassin Seine, v, p. 224), the two varieties occur together in France; but this is not always the case, as a large number of specimens recently captured by myself at Lautaret, Hautes Alpes, as well as many others taken several years ago at Mendel, in the Austrian Tyrol, have the hind femora black. The number of pale joints at the base of the antennæ, again, is variable (three in British specimens, as stated by Stephens, four in the continental, according to Weise), as is also the shape of the tooth-like prominence at the sides of the prothorax, it being sharply denticiform in some of the continental examples. Weise describes yet another variety, with the elytra reddish-yellow below the shoulders (he notes a similar form of *Z. subspinosus*), but this I have not seen. Our British insect, for specimens of which most of us are indebted to Mr. Harwood of Colchester, is really very like *Z. scutellaris*, Suffr., but differs from that species in having the head, except in front, and

the scutellum black, and the head itself more coarsely and more irregularly punctate. *Z. scutellaris* is attached to *Populus nigra*, and should occur in England. *Z. flavicollis* I have only seen on *Populus tremula*.

Horsell: August 28th, 1905.

OCURRENCE OF *ARGYRESTHIA ILLUMINATELLA*, ZELL., IN BRITAIN.

BY E. MEYRICK, B.A., F.R.S.

Two specimens of this insect were recently sent me for determination by Mr. Alfred Sich of Chiswick, who (in company with his brother, Mr. Leonard Sich) took them in the middle of June near Hailsham, in Sussex. It does not seem to have been authentically recorded from Britain before, so far as I know; earlier records were based on the species now known as *atmoriella*. The unicolorous species of *Argyresthia* present difficulties which are probably not yet fully understood; and therefore when visiting Merton Hall, I took the opportunity to compare these specimens with Lord Walsingham's continental material, and to get his opinion on them. Lord Walsingham and Mr. J. H. Durrant both agreed with me that they were referable to the true *illuminatella*, and their identity may therefore be taken as established.

The species is markedly smaller and more yellowish than *atmoriella*, but is especially distinguished from it by the much paler hindwings; *atmoriella* feeds on larch, *illuminatella* on pine (species doubtful, or perhaps more than one). *Ocnerostoma piniariella*, which might be confused with it, is abundantly distinct structurally by the reduced neurulation and shorter palpi, and is greyer. Mr. Sich reports that the specimens were beaten from *Pinus* (species not ascertained) in a wood which also included larch and other trees; the insect was common, but was regarded at the time as being *O. piniariella*, from which, on subsequent examination, he found it to be distinct. I hope that the discoverer will now complete his interesting record by finding the larva and correctly identifying the food-plant.

I may add that the description in my "Handbook" is drawn from the true *illuminatella* (not from *atmoriella*, to which Staudinger in his Catalogue refers it), but the localities cited are erroneous.

Thornhanger, Marlborough:

August 15th, 1905.

AN ADDITION TO THE BRITISH LIST OF *DIPTERA*.

BY W WESCHÉ, F.R.M.S., &c.

In July, 1902, I found a single specimen of the genus *Ulidia* at Birchington, Kent; this I placed in my cabinet without identification of the species. In August of this year (1905) I obtained a number on some weeds, with three pairs *in cop.*, two of which I gave to the British Museum, where Mr. E. E. Austen has identified them as *Ulidia nigripennis*, Lw., and where they may be seen in the British Collection.

There are only two species in Mr. Verrall's list, and this will make a third. The fact of my finding it twice at an interval of three years shows that it is without doubt an established inhabitant of these islands, and not a wind blown insect from the continent, and it has probably hitherto escaped notice owing to its small size.

139, Castellain Mansions,
Maida Vale, W.:

September 4th, 1905.

ANTIPODEAN FIELD NOTES.

III.—A SKETCH OF THE ENTOMOLOGY OF SYDNEY, N.S.W.

BY JAMES J. WALKER, M.A., R.N., F.L.S.

(Continued from page 220).

The handsome *Charaxes sempronius*, Fab., one of the finest of the Australian butterflies, is said to be at times not rare near Sydney, but I never succeeded in taking it, and indeed saw it only once or twice. *Pyrameis cardui*, var. *kershawi*, McCoy, and *Junonia vellida*, Fab., are both very plentiful in waste open places, especially in early summer, when *P. itea*, Fab., is also fairly common, though less so than in some other Australian localities that I have visited. Its spiny larva may be easily found on the formidable stinging-nettle, *Urtica incisa*. The *Satyridæ* are perhaps more in evidence than any other group of butterflies in the Sydney district. Several closely allied

small forms of the genus *Hypocista* flit quietly about in shady spots in the "bush" throughout the summer, and the larger and more boldly marked *H. euphemia*, Westw., frequents open rocky places. *Melanitis leda*, L., being almost or quite on the southern limit of its distribution, is but rarely met with, and the little sober-looking *Ypthima arctöus*, Fab., though tolerably common, is somewhat local in open grassy places. The most conspicuous of the group is the beautiful brown and fulvous *Tisiphone* (*Epinephile*) *abeona*, Don., which may be found more or less plentifully throughout the summer in damp gullies and watercourses where the food-plant of its larva, the "cutting-grass," *Cladium* *sp.* abounds (*cf.* Mathew, Trans. Ent. Soc., 1888, p. 141). It has a quiet floating flight, and is a very striking object as it sits with expanded wings on the bright green *Cladium*. *Heteronympha merope*, Fab., *Xenica achanta*, Don., and *X. klugii*, Guér., are all three abundant in the "bush" surrounding Sydney, the first-mentioned appearing early in October, though the females may be found in quite good condition as late as February, long after the other sex has quite disappeared. In the Illawarra district are found the pretty *Heteronympha banksi*, Leach, and the very remarkable *H. mirifica*, Butler, of which the male (*H. digglei*, Miskin), so closely resembles, in its brown and fulvous coloration, the same sex of *H. merope* as to be quite indistinguishable from it on the wing; while the female, broadly banded with white on a dark sooty-brown ground-colour, is quite unlike any other Australian butterfly.

Of the numerous "Blues" I will here only allude to the beautiful genus *Ogyris*, three or four species of which, including the finest of all, *O. genoveva*, Hew., have been taken in the district by Mr. Waterhouse, but I have only met with one of them, *O. abrota*, Westw.; the larvæ feed in companies on species of *Loranthus* growing on high *Eucalyptus* trees. The very pretty silvery-blue *Ialmenus evagoras*, Don., is abundant, especially in the National Park, where the larvæ often strip the twigs of the "black wattle" (*Acacia decurrens*) quite bare, and the pupæ may be gathered from the low bushes almost like currants. Both larvæ and pupæ are always attended, and very efficiently guarded, by multitudes of ants of two or three species (some of which bite and sting pretty severely), for the sake of a sticky and rather sickly-smelling secretion which they exude (*cf.* Mathew, Trans. Ent. Soc., 1889, p. 153). The darker-coloured *I. ictinus*, Hew., is less common than its congener, but is not rare at Ryde on the Parramatta River, and is similarly guarded by ants in its earlier stages, which are also passed on the *Acacia decurrens*.

Among the *Pieridæ* I may mention *Delias nigrina*, Fab., which is sometimes not uncommon, but usually flies round the taller trees, too high to be readily caught; the contrast between the white upper surface and the richly coloured black, yellow, and scarlet under-side, give the butterfly a very striking aspect on the wing. *Belenois java*, Sparrm. (*teutonia*, Fab.) is here by far the most abundant species of its family, and may be found plentifully throughout the summer on some large bushes of the so-called "Native Orange" (*Capparis nobilis*) in the Botanical Gardens. In some years this butterfly multiplies to an inordinate extent in the interior of New South Wales, and, like other species of the group, collects in vast migratory flights. Such a migration occurred on November 25th, 1903, and several succeeding days, when absolute clouds of white butterflies, apparently all of this species, were reported from various inland localities, travelling before a hot north-west wind; and thousands were to be seen crossing Port Jackson, mostly from north to south. At the National Park on the 28th it was excessively abundant, and towards evening clusters of twenty or thirty, consisting of both sexes in about equal numbers, could be seen "camped" under the lee of almost every bush. The butterflies had practically all disappeared by the 30th.

The *Hesperiidæ* include a good many species, some of considerable beauty and interest, and one or two (as *Netrocoryne repanda*, Feld.) of fairly large size.

As may be expected from so favourable a situation, the moths are very numerous in species as well as individuals, but I can here allude to only a very few, such as the conspicuous day-flying species of *Agarista*, one of which, *A. glycine*, Lewin, is very plentiful and sometimes destructive in the larva state to the vines. The larval cases of the *Psychidæ* are of great variety of construction, and are very numerous and conspicuous in the "bush" as well as in the gardens, where the large cases of the "bag-worm," *Metura elongata*, Saund., sometimes four inches in length, are among the first objects of their kind to attract the attention of the new comer. The large and handsome green larva of *Antheræa eucalypti*, Scott, which reminds one forcibly of that of the South European *Saturnia pyri*, is often common on the young gum-trees, and has also adopted as a food-plant the South American *Schinus molle*, extensively planted as a shade tree along the suburban roads. One of the most objectionable insects in the "bush" is the larva of the Limacodid moth, *Doratifera vulnerans*, Lewin, which is often found in very undesirable profusion on young

Eucalyptus foliage in early summer. It is a stout, bright green, slug-like creature varied with yellow, with rose-coloured tubercles, each bearing a circular series of motile stiff hairs or spines. The slightest touch of these hairs causes a sensation like that of the sting of a nettle, only worse, which soon subsides, but remains perceptible for several hours afterwards.

Another caterpillar possessed of very marked urticating powers is the enormous larva of the fine Bombycid moth *Chelepteryx collesi*, Gray, which is found, but rather sparingly, on the foliage of *Eucalyptus* at Botany Bay and elsewhere. This larva attains to nearly the size of that of *Acherontia atropos*, and is of a dull dark green colour with several bright yellow tubercles on each segment, bearing fascicles of stiff reddish hairs, which sting very severely when touched. The cocoon, which is not unlike that of *Odonestis potatoria* on a large scale, both in texture and colour, is often found (but usually empty) under loose bark, and is also an undesirable object to handle, as the stinging hairs of the larva are freely interwoven into its substance.

Among the *Hymenoptera* the ants are very much in evidence, especially the small evil-smelling species of *Crematogaster*, which swarm under loose bark to the exclusion of more desirable insects, and the large and formidable stinging species of the genus *Myrmecia*. These ants, which are much dreaded and disliked by the inhabitants of New South Wales, are known by them under the names of "bulldogs," "inchmen" (in allusion to their length), "jumpers," "soldiers," and "joeys;" the last name being applied especially to the bright red *M. gulosa*, Fab., which is the most fierce and aggressive of them all, and is endowed with the most severe and painful sting. It makes large subterranean nests in dry sandy places, often at the foot of a particularly inviting looking bush or tree, and I have more than once been very disagreeably surprised by finding a string of these savage creatures running up the leg of my trousers, having unwittingly put my foot into one of these nests. This ant, as well as the larger and stouter, but less active black *M. forficata*, Fab., and the smaller *M. pilosula*, Sm. (black with bright yellow mandibles), is constantly found ranging about a foliage, and all three frequently appear in the umbrella while beating, and necessitate a good look-out being kept in order to avoid being stung. A large harmless brown species of *Camponotus*, which lives in strong colonies under logs and loose bark, is known as the "sugar-ant," and is the host of the interesting Brentiid beetle *Cordus hospes*, Germ., which is sometimes found in considerable

numbers in the nest of this species. The numerous *Fossoræ* include several handsome species of *Mutilla*, which occur under bark, as well as walking about in sandy spots; and the curious genus *Thynnus*, so characteristic of the Australian region, is represented in the vicinity of Sydney by a very large number of species, which vary enormously in size and appearance. Some of the males of the larger forms are handsome and conspicuous insects of somewhat wasp-like appearance, which, when caught, go through the motions of stinging with great vigour and persistency, though they are of course perfectly harmless, which is by no means the case with the apterous females. These insects frequent flowers, especially the attractive blossoms of the *Angophora cordifolia* (of which shrub I shall have much to say later on), and are then almost invariably found paired, the females of some of the species being ludicrously small in comparison with their partners. Allied to these is *Diamma bicolor*, Westw., the female of which is perhaps the worst stinging insect found about Sydney, or indeed in Australia; it is a creature not unlike a stoutly built wingless ant about an inch in length, deep shining chrome-green in colour with coral-red legs; it is occasionally found running actively in hot dry places, and requires great caution and dexterity in capture. The *Angophora* blossoms are frequented in their season by several large and somewhat formidable looking *Hymenoptera* of the genera *Scolia*, *Abispa*, *Priocnemis*, &c.; but these are by no means aggressive, and are not to be feared while collecting. Among the *Tenthredinidæ* are several species of the curious genus *Perga*, including several fine and highly-coloured insects; their larvæ are found feeding in companies on the foliage of the young gum trees, often stripping the boughs quite bare, and when disturbed, raising their heads suddenly all together in a very comical way. A small but very beautiful metallic-green "carpenter bee," *Lestis bombyliiformis*, Sm., passes its early stages in the dry pithy flower-stalks of the quaint "grass trees" (*Xanthorrhæa*), and the perfect insect may be taken flying about them in early summer.

One of the most striking features of the Entomology of Sydney, as soon as the hot weather fairly sets in towards the end of October, is the abundance of the *Cicadas*, or as they are invariably miscalled, "locusts." Every suburban garden or cluster of trees then resounds with their shrill, and (at times) somewhat annoying stridulation, and in some of the wooded gullies the din they make is often positively deafening. Comparatively very few of them survive beyond the end of January; in some years, as in 1903 (it is said every third year),

they occur in much larger numbers than usual. Their screeching noise can then be heard on board ship anywhere in the harbour, and the lower parts of the tree-trunks are crowded with the curious horny-looking empty and dry larva-skins from which the perfect insects have escaped. In hot weather they are very active, and not always easy to secure, flying off the tree-trunks readily when approached. Several of the species are of large size, as the green *Cyclochila australasica*, Amyot, perhaps the commonest of all; the reddish-brown *Thopha saccata*, Amyot, the "Double Drummer" of the Sydney boys, so called from the large development of the "opercula" on the under-side of the body of the ♂; and *Psaltoda mœrens*, Germ., whose black body, powdered with small patches of white hairs, suggests its popular name of "The Floury Miller." The sweet and rather pleasantly-flavoured white secretion, much appreciated by the boys under the name of "manna," is produced by much smaller insects of the order Homoptera (*Eurymela* spp.), rather gaily marked with deep madder-brown, red, and white, which live in companies in all stages of development on the young shoots of the *Eucalyptus* shrubs. The Hemiptera are very numerously represented in species, and include some very curious and handsome forms, but few, if any, of large size; the most singular of all being *Ptilocnemis lemur*, a small brown and fulvous Coreid bug found not rarely under loose dry bark, with the largely developed hind tibiae furnished with a dense growth of hair, so as to resemble a bottle-brush. Several active and brightly-coloured Reduviids are met with in the same situation, as well as under stones, and some of them are able to give a severe and painful bite if handled without due caution. A fine *Ranatra* occurs in stagnant pools, and a species of *Halobates* is said to be found not rarely on the surface of the water in some of the quiet upper reaches of the harbour, but I never had an opportunity of looking for it.

By shaking out the dry leafy branches of *Eucalyptus*, lying on the ground in bushy places—a very productive method of collecting, especially as regards *Colcoptera*—a relatively enormous Thysanopod, *Idolothrips spectrum*, Haliday (the life-history of which has been ably worked out by my friend Mr. W. W. Froggatt, the Government Entomologist of New South Wales),* may often be obtained in large numbers. Very few, if any, Termite mounds of any size are to be seen near Sydney, but a small species of *Termes* (*lactis*, Froggatt) infests nearly every not absolutely fresh log or stump in the bush;

* Proc. Linn. Soc. N. S. Wales, 1904, p. 64 et seq.

it is also exceedingly destructive to the woodwork of buildings in the suburbs of Sydney, and has at times wrought great damage in the city itself. Mosquitoes and other *Diptera*, while sufficiently numerous and annoying, do not constitute so great a pest as in the more tropical regions of Australia, though the "sand-flies" in the National Park are particularly venomous, as I have more than once found to my cost. The *Neuroptera* and *Orthoptera* abound in species and individuals, but do not call for further remark, except perhaps the rare and beautiful species of *Psychopsis* in the first-named Order; and a noticeable feature of the Entomology of the "bush" is the abundance of large forms of *Blattidæ* (*Panesthia*, *Polyzosteria*, &c.). These are found under dead leafy boughs, stones, and logs, and especially in decayed wood, which they reduce to a loose fibrous state; nearly all of them emit a very disagreeable odour, and a species of the last-mentioned genus (I believe *P. ferruginea*, Walk.) is certainly the most evil-smelling insect that I have ever encountered. It is an apterous species about the size of our familiar kitchen cockroach, of a rich glossy reddish-chestnut colour; and when it is revealed by turning up a log, it disdains to run away, but, like the skunk, elevates its hinder end from which it protrudes two bright orange-coloured vesicles, and emits an intolerably rank and penetrating odour that can be easily perceived at a distance of three or four yards. For my part, I could never summon up enough resolution to handle so repulsive a creature.

Some very pretty species of *Forficulidæ* occur under bark, and a large pallid earwig with largely developed forceps, very nearly allied to our *Labidura riparia*, L., if indeed not a form of that insect, is common in sandy places near the shore. The giant of the tribe, *Anisolabis colossea*, De Borm., is not uncommon under damp logs in the Illawarra district. Adult examples vary much in size, the largest specimens sometimes exceeding two inches in length. When disturbed it turns up its tail in a very threatening manner, and it can give so severe a pinch with its anal forceps as to break the skin of the finger and draw blood. The bushmen seem to regard it with much dread, evidently looking on it as a kind of scorpion. Our familiar *Forficula auricularia*, L., does not appear to have reached the Sydney district, at any rate I have never seen it there, though it is abundant and fully naturalized at Hobart and other places in Tasmania.

(To be continued).

Læmosthenes complanatus, Dej., &c., in the Isle of Sheppey.—During a visit to the Isle of Sheppey in August I was induced to examine a very large heap of decayed and condemned sacks from the Sheppey Glue and Chemical Works, piled up in an adjoining field. Here I was able to find all the *Coleoptera*, &c., hitherto met with in the buildings, under vastly more pleasant conditions of working than in the gloom and reeking atmosphere of the "bone-house"; and several additional insects, evidently associated with the works, were found for the first time. The most interesting of these, *Læmosthenes complanatus*, Dej., was very plentiful, mostly hiding between the loose sacks on the sides of the heap, and running off very actively when disturbed. This Carabid, which is in all probability indebted to commerce for its very wide distribution, has been observed by me at such widely separated localities as Gibraltar, Valparaiso (Chile), and Port Adelaide (South Australia); and in New Zealand it occurs in abundance in the neighbourhood of all the ports that I have visited. The usual *Dermestes vulpinus*, *Necrobia ruficollis*, *rufipes*, and *violacea*, and *Alphitobius diaperinus* were in great numbers under the sacks at the base of the heap, especially those which retained traces of grease, and in this situation I met with the following: *Oligota inflata*, common; *Quedius fulgidus*, common, varying much in size and development, with a few of the var. *? mesomelinus*; *Philonthus æneus*, *varius*, and other common species; *Dendrophilus punctatus* and *Carcinops 14-striata* in large numbers, and *Hister carbonarius* and *12-striatus*, *Gnathonus nannetensis*, and *Acrilus minutus*, more sparingly; *Omosita colon* and *discoidea*, *Monotoma spinicollis*, *rufa*, and *subquadri-foveolata*, the last-mentioned species found in plenty by shaking the sacks over paper; *Trogosita mauritanica*, *Dermestes lardarius*, *Atomaria munda*, and *Tribolium ferrugineum*, sparingly, and *Trox scaber*, abundant. The two special earwigs *Apterygide arachidis*, Yers., and *Anisolabis annulipes*, Lucas, were also present. the former as usual in large numbers.

Under clods, pieces of wood, &c., in a clay-pit near at hand, I obtained a fine and varied series of *Anisodactylus parvulus*, a beetle I had quite lost sight of in the Isle of Sheppey since 1874.

Another interesting "find" to me was the beautiful larva of *Cucullia asteris*, which occurred commonly on *Aster tripolium* in the salt marsh not far from Sheerness—a spot which I have known intimately for more than forty years, but where I have never before seen the moth in any stage.

Neither *Colias edusa* nor *C. hyale* put in an appearance during my visit, though I had expected to see the former species at any rate, as it was observed by my friend, Mr. A. H. Hamm, near Oxford on June 25th, and by myself (a large worn example of the ♀ var. *helice*), on the chalk downs at Streatley, Berks, on July 3rd.—JAMES J. WALKER, Aorangi, Lonsdale Road, Summertown, Oxford: Sept. 18th, 1905.

Malachius vulneratus, Ab., in Sheppey.—Of this species, recently added to the list of British *Coleoptera*, there are three specimens in the Power Collection taken by Dr. Power at Sheerness on June 11th, 1859.—EDWARD A. WATERHOUSE, 6, Avenue Gardens, Acton: August 21st, 1905.

[M. Bedel, to whom I am indebted for specimens of both sexes, has recently found this species in abundance at Itteville (Seine-et-Oise), France, at the end of May, upon small rushes: cf. Bull. Soc. Ent. Fr., 1905, p. 176.—G. C. C.]

Coleoptera in the New Forest, &c.—In the New Forest, from April 23rd to 28th, I met with the following:—*Elater lythropterus*, in numbers, beech logs; *E. pomonæ*, in small oak logs on ground (?); *E. elongatulus* (1); *Mesosa nubila* (6), with *E. pomonæ*; *Cyrtotriplax bipustulata*, in fungoid growth on fallen logs. In the same locality, on June 12th, 13th, and 14th, a friend, Mr. G. F. Zimmer, obtained, chiefly by beating hawthorn bloom already going over and turning brown, sixteen species of *Longicornes*, including *Callidium alni* (1), *C. variable* (1), *C. violaceum* (2), *Grammoptera præusta*, F. (1), *Clytus mysticus* (15), and var. *hieroglyphica*, Hbst. (1), *Mesosa nubila* (3), *Leptura scutellata* (2), *Polyopsia præusta* (4), also *Ischnomera cærulea* (2) and *I. sanguinicollis* (1).

In September, on the banks of the Wye near Ross. I took a fine series of *Opilo mollis* from a dead willow.*—GUY S. WHITAKER, 116, Trinity Road, S.W.: September, 1905.

Recent Captures of Coleoptera.—*Phytosus nigriventris*, Chev. I took two or three examples of this species on the sandhills at the mouth of Poole Harbour, in April, in company with *P. balticus*, Kr.

Gnorimus nobilis, L. I took three examples of this in June on the flower heads of a large *Umbellifer* at Mathow, in Herefordshire, and saw others on the wing.

Ceuthorrhynchus viduatus, Gyll. One specimen, by sweeping on banks of river at Upton-on-Severn, in July. *Bembidium adustum*, Schaum, was extremely plentiful on the same date.—J. R. LE B. TOMLIN, Chester: August, 1905.

Myelophila cribrella on the Kentish Rag, near Ashford.—I have always associated this insect with the Thames littoral, and records of its occurrence elsewhere seem very few.

The capture of a specimen in July, 1904, on Hothfield Common, some three miles to the west of this town, came as a surprise to me, and set me hunting for the larva this last spring, when it was not only found there, but in several places to the east and south of the town—indeed, in almost any waste place on drift sand where the common spear thistles, *Cnicus lanceolatus*, were left undisturbed (*Onopordon aconthium*, which is said to be its usual food plant does not seem to occur here). The furthest locality to the west yet examined was near Lenham, about eleven miles off, where it occurred freely, so that one cannot help thinking it might be found in similar places further up the county, or even into Surrey. The publication of this note may lead to its turning up in other inland districts where it may be as

* This insect was found in the old holes of *Lyctus canaliculatus* (?), which is interesting in reference to Mr. Champion's note on my capture of *Tarsostenus univittatus* (Ent. Mo. Mag., vol. xxxvii, p. 300).

little expected as it was in this neighbourhood.—W. R. JEFFREY, Ashford: September 11th, 1905.

[*M. cribrella* is now known to occur in many inland localities. Barrett gives eleven counties for its distribution in Britain, six of which are inland.—G. T. P.]

Lophosia fasciata, Mg., in the New Forest.—On July 25th I again took in my garden at Lyndhurst a specimen of this rare Dipteron, which I have not seen since taking the three examples recorded in vol. xxxvii, page 212, of this Magazine.—F. C. ADAMS, 50, Ashley Gardens, S.W.: September, 1905.

Abundance of Locusta viridissima, &c., at Deal.—During the last fortnight in August this year I noticed a great abundance of the fine grasshopper, *Locusta viridissima* at Deal. On the rank vegetation growing on both sides of the well known broad ditch on the sandhills, nearly opposite the coastguard station, it was especially plentiful, and almost every night probably a hundred specimens might easily have been picked off the thistles and other vegetation. In the day-time they were much more difficult to see, as they usually dropped to the bottom of the thick herbage on the least alarm, but with the aid of a lamp at night could be picked off without any trouble. Near the ditch, too, the local *Xiphidium dorsale* occurred, and on the drier parts of the sandhills *Stenobothrus elegans* was plentiful.

In Folkestone Warren *Stenobothrus lineatus* and *Gomphocerus rufipes* were taken, but were not observed elsewhere. In the Warren, too, *Platycleis grisea* was fairly common, but I saw nothing of *Thamnotrizon cinerea*, which in 1888 I found of frequent occurrence there. The various common species of *Stenobothrus* were as usual abundant all over the district.—GEO. T. PORRITT, Edgerton, Huddersfield: September 7th, 1905.

Note on the Heteropterous genus Euloba, Westwood.—The genus *Euloba*, Westwood, type *E. pallida*, Westw. (Thesaurus Entomologicus Oxoniensis, p. 191, t. 36, figg. 4, 4a, b (1874)) = *Phyllotingis*, Walker, type *P. arida*, Walk. [Cat. Hemipt.-Heteropt. vii, p. 3 (1873)], was omitted from Scudder's "Nomenclator," and in the "Index Zoologicus," published by the Zoological Society of London (1902), it was incorrectly ascribed to Uhler, on the authority of Bergroth. Lethierry and Severin, too, omitted the reference to Westwood in their Catalogue (1896), also ascribing it to Uhler, who simply used the name *Euloba pallida* in his contribution to Kingsley's "Standard Natural History." The same mistake was made by myself in the "Biologia Centrali-Americana," Rhynchota, ii, p. 68 (1896), following Lethierry and Severin. As the name *Euloba* must be dropped as a synonym of *Phyllotingis* (the descriptions of Walker and Westwood having been made from the same insect from Ega in the British Museum), and the species itself having been previously named by Haglund, it is perhaps hardly necessary to call attention to the matter. I only note it to show how easily a generic description may be overlooked, even when accompanied by excellent figures, and published in a well known work.—G. C. CHAMPION, Horsell, Woking: September 14th, 1905.

Review.

ENTOMOLOGEN-ADRESSEBUCH. THE ENTOMOLOGISTS' DIRECTORY. ANNUAIRE DES ENTOMOLOGISTES. W. JUNK, Berlin, 1906.

This useful publication contains the addresses of about nine thousand entomologists, arranged under their different countries, and in most cases the particular branch of entomology in which individuals are interested is mentioned; the book is well and clearly printed, and evidently great pains have been taken to secure its accuracy; there is also a complete index; the size is large 8vo, and the work, with the index, occupies about 300 pages. Germany comes first in point of numbers with 2219 entomologists, the United States next with 1323, and Great Britain next with 1252; and so these three countries contain about as many as the whole of the rest of the world put together.

Since receiving the book we have found it of considerable use, and we strongly recommend it to all who are working at foreign insects, as they can see at a glance the workers at their particular subject in any country. The price is five francs, and it is well worth the money.

Obituary.

W. Johnson.—It is with much regret that I have to announce the death in his 90th year of my venerable and valued friend Mr. W. Johnson, who passed away on August 6th at his residence at Wigan.

About fifty or sixty years ago there existed in Lancashire and Cheshire a well known and enthusiastic band of Entomologists, among whom were W. Johnson, Nicholas and Benjamin Cooke, C. S. Gregson, N. Greening, J. B. Hodgkinson, &c. Mr. Johnson was one of the eleven who met at my house on February 24th, 1877, when the Lancashire and Cheshire Entomological Society was founded. He always took a deep interest in the Society, and was a regular attendant at the meetings; and on his removal to Wigan in 1899 he was appointed an Honorary Member. Mr. Johnson was thorough in everything he undertook. I believe he was for thirty years in the engineering department of the Mersey Docks and Harbour Board, and since his retirement his services have been recognised by a pension. Mr. Johnson leaves behind him a collection of *Lepidoptera*, which is now for sale. Among a number of interesting specimens is one of *Eromene ocella*, which is one of the three recorded by Mr. C. G. Barrett, as captured near Liverpool, and I believe was taken by himself.—SAMUEL J. CAPPER.

Society.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:
Thursday, July 13th, 1905.—Mr. HUGH MAIN, B.Sc., President, in the Chair.

Mr. Joy exhibited larvæ of *Thecla rubi* feeding on the berries of buckthorn. He had also found them feeding on the buds of bramble and dogwood. They made holes to extract the contents. Mr. Stonell, an *Abraxas sylvata* (*ulmata*) taken recently in the Clapham Road. Mr. Sich, the ova of *Coleophora gryphipennella* on a rose leaf. It was an upright egg, and abundantly supplied with gum. Mr. Main, living larvæ of *Papilio machaon* at different ages; and also an old stem of an Umbellifer, containing cells of a species of "carpenter bee." Mr. Step distributed copies of the photograph of the members who attended the Field Meeting at Seal Chart on May 27th.

July 27th, 1905.—The President in the Chair.

Mr. Carr exhibited the larvæ of *Epione advenaria* from Seal. Mr. Stonell a putty coloured larva of *Odontopera bidentata* from Yorkshire; and reported that he had taken a fair number of *Cænobia rufa* at Worcester Park. Mr. Main, a photograph of a woodcock's nest, taken in the New Forest; and also a photograph of a colony of the larvæ of *Eugonia polychloros* in the New Forest, from which he had already bred more than sixty imagines. Mr. Noad Clark, photographs of (1) the ova *Coleophora gryphipennella* on leaves of rose, (2) a much-magnified photograph of the micropyle of the same, and (3) the ova of *Ageria chrysidiformis*. Mr. Sich said that the larva of *C. gryphipennella* was at first a true miner, boring direct from the base of the ovum into the leaf.

August 10th, 1905. The President in the Chair.

Mr. Main exhibited the larvæ of *Hadena contigua*, from ova laid by a New Forest ♀. The colour variation was extreme. Mr. Sich, living larvæ of (1) *Nisoniades tages*, and (2) *Syrichthus malva*, both feeding well on garden strawberry. They fed at night and retired in the day time into "tents" of leaves loosely span together. The former hibernated as a larva, the latter as a pupa. Mr. West (Greenwich), two very local species of *Hemiptera* taken at Yarmouth in July; *Gnathoconus picipes* at roots of violets, and *Chorosoma schillingi* on Marram grass. Mr. Turner, (1) a species of *Edipoda* which was very common at Gavarnie in the Hautes Pyrenées, and (2) a living specimen of *Locusta viridissima* taken by him at the same place. A discussion took place as to the habits of the latter species, and it was considered to be carnivorous rather than vegetarian in its diet. Mr. R. Adkin read a short note from Mr. Kirkaldy on "The Entomology of the Lowlands of Oahu (Hawaiian Islands)."—HY. J. TURNER, *Hon. Secretary*.

ON THE BRITISH SPECIES OF *HYDROTÆA*, Dsv.

BY PERCY H. GRIMSHAW, F.E.S.

During the past few months I have made a detailed study of the genus *Hydrotæa*, with the double object of ascertaining what species undoubtedly occur in our islands, and of writing full and original descriptions of such species, paying especial attention to the chaetotaxy of the legs, a subject which has hitherto been much neglected, especially as regards the female sex. At the outset I made an appeal in this and other journals for the loan of material, and was favoured with a most generous response, receiving many hundreds of specimens, most of them in beautiful condition. I had thus the advantage of examining an unusually complete representation of the genus, and have accordingly prepared a detailed account of our native species, with drawings of the legs in nearly every case. As the length of such a paper, however, would preclude its publication in a monthly magazine, I have deemed it advisable to publish without further delay a short preliminary account of the genus, limiting myself to the *essential* characters only of each species, and reserving the fuller details for some later publication, which may possibly take book form.

Throughout the work I have been largely dependent upon the very valuable Monograph published by Herr P. Stein in 1903, entitled "Die europäischen Arten der Gattung *Hydrotæa*, Rob.-Desv." (Verhandl. der k. k. zool.-bot. Ges. Wien, 1903, pp. 285-337), and although all the descriptions I have written (with the exception of the females of three species) are original and drawn up from specimens actually examined by me, yet in the construction of the keys and in the identification of doubtful specimens I have derived invaluable hints from Herr Stein's paper. At the same time I have described the females of three species which were previously unknown, while that of one species (*H. cinerea*, Dsv.) has yet to be discovered.

In the description of the leg-bristles I have followed the system introduced by me in the present Magazine (1905, pp. 173-176), and have paid more attention to such bristles than perhaps other writers, believing as I do that fairly easy and reliable characters can be founded upon them, especially in the case of the female sex, where identification in the *Anthomyiidae* is usually a matter of some difficulty.

It now remains for me to express my great indebtedness to the gentlemen who have favoured me with the loan of specimens. Mr. E. E. Austen, of the British Museum, very kindly entrusted me with the examination of the specimens under his charge; the Rev. E. N.

Bloomfield, Messrs. A. E. J. Carter, C. W. Dale, Wm. Evans, J. Gordon, J. Henderson, J. J. F. X. King, and E. E. Lowe, sent me the whole of the examples in their collections; Professor L. C. Miall, of Leeds University, allowed me the use of a fine set of specimens from the late Dr. R. H. Meade's collection; Mr. Claude Morley submitted a considerable number of specimens from the Ipswich district; Dr. R. F. Scharff sent a very interesting collection of Irish specimens, mostly collected and identified by Haliday; Dr. David Sharp contributed all the material in the Cambridge Museum collection; Mr. G. H. Verrall most generously lent me a complete and splendid series from his own unrivalled collection; Mr. James Waterston lent me many useful Scottish examples; Dr. J. Wood, of Tarrington, sent a splendid set of beautifully mounted specimens, chiefly from Herefordshire; and lastly, Col. Yerbury allowed me the use of all the material in his possession. To all these gentlemen I now tender my heartiest thanks—without their most generous aid the following account could certainly not have been written.

The genus *Hydrotæa*, in the male sex, is sharply differentiated from the rest of the *Anthomyiidae* by the presence of peculiar teeth on the ventral side of the front femora, and for the purpose of identification this character alone is quite sufficient. The female sex, on the other hand, is not so easy to distinguish, but the combination of all the following characters will readily remove any doubt:—*Calyptra* large, the under scale projecting considerably beyond the upper, wings with the 6th longitudinal vein rather long, but ceasing at a considerable distance from the margin, frons always with a pair of decussating bristles, thorax with four post-sutural dorso-central bristles, and two sternopleural bristles, one of which is at the upper anterior angle and the other at the upper posterior angle, in the majority of species the front tibiae are without bristles, and lastly, the abdomen is usually unicolorous or without dorsal stripe, never spotted.

Thus the females of *Hydrotæa* may be distinguished from other *Anthomyiidae* by a variety of characters, most of which are found singly in other genera. Only in *Ophyra*, as Stein points out, are the whole of these found in combination as in *Hydrotæa*. It may be helpful to emphasize these characters in another way, thus: the genera of the *Mydæa* group, e. g., *Hyetodesia*, *Mydæa*, *Spilogaster*, &c., only rarely possess decussating bristles, and on the other hand always possess from 3–5 sterno-pleural bristles: those of the *Anthomyia* group have only three post-sutural dorso-central bristles, while the 6th longitudinal vein always reaches the margin of the wing; *Homa-*

lomyia and its allies have the 7th or axillary vein curved in a peculiar manner round the end of the 6th, while here again and in the remaining group (*Cænosiæ* and its allies) there are only three post-sutural dorso-central bristles.

The species known to occur in Britain may be identified by means of the following keys —

MALES.

1. Hind femora with a single or double ventral spine 2
Hind femora without ventral spine..... 5
2. Spine of hind femora near base 2. *occulta*, Mg.
Spine of hind femora at or a little beyond middle 3
3. Eyes thickly haired 1. *ciliata*, Fab.
Eyes bare 4
4. Spine of hind femora single 8. *armipes*, Flin.
Spine of hind femora double 9. *albipuncta*, Ztt.
5. Abdomen yellow and translucent on at least the two basal segments...
Abdomen nowhere yellow..... 16. *curvipes*, Flin. 6
6. Wings with a patch of microscopic hairs at end of discal cell...
Wings without such patch 10. *militaris*, Mg. 7
7. Basal joint of middle tarsi with a cushion of short, stiff bristles...
Basal joint of middle tarsi simple 15. *irritans*, Flin. 8
8. Middle tibiæ with 1-2 anterior bristles 9
Middle tibiæ without anterior bristles 11
9. Small species (3½—4 mm.) 18. *parva*, Meade.
Larger species (6—8 mm.) 10
10. Eyes almost touching; hind tibiæ with a median postero-ventral tuft of fine hairs 7. *pilipes*, Stein.
Eyes distinctly separated; hind tibiæ without such tuft... 6. *palæstrica*, Mg.
11. Small species (3—3½ mm.); abdomen shining black, and at least the two apical segments without trace of tomentum 17. *glabricula*, Flin.
Larger species (5—9 mm.); abdomen always more or less covered with tomentum..... 12
12. Eyes thickly haired 3. *cyrtoneurina*, Ztt.
Eyes bare 13
13. Middle tibiæ with regular fringes of fine hairs on anterior and posterior surfaces...
Middle tibiæ without such fringes 11. *tuberculata*, Rond. 14
14. Hind tibiæ with 6—12 antero-ventral bristles 5. *similis*, Meade.
Hind tibiæ with 2—3 antero-ventral bristles 4. *dentipes*, Fab.
Hind tibiæ with only 1 antero-ventral bristle..... 15
15. Teeth on front femora inconspicuous and blunt 12. *velutina*, Dev.
Teeth on front femora long and very acute 16
16. Thorax entirely black; abdomen dark, with the dorsal stripe very indistinct...
Thorax, when viewed from behind, with its posterior third distinctly cinereous; abdomen light cinereous; with the dorsal stripe sharply defined ... 13. *meteorica*, L. 14. *cinerea*, Dev.

FEMALES.*

1. Abdomen with sides of two or three basal segments yellow... 16. *curvipes*, Fln.
Abdomen nowhere yellow..... 2
2. Head of halteres yellow 3
Head of halteres black or dark brown 5
3. Thorax and abdomen shining blue-black; front tibiae with a postero-ventral
bristle at one-third from apex 1. *ciliata*, Fab.
Thorax and abdomen yellowish-grey or brownish-grey; front tibiae without
postero-ventral bristle 4
4. Arista distinctly pubescent; posterior transverse vein nearly straight, more
than its own length from the middle transverse vein ... 15. *irritans*, Fln.
Arista practically bare; posterior transverse vein strongly flexed, not more than
its own length from the middle transverse vein 9. *albipuncta*, Ztt.
5. Middle tibiae with an anterior bristle 6
Middle tibiae without anterior bristle 11
6. Middle tibiae with a ventral bristle 10. *militaris*, Mg.
Middle tibiae without ventral bristle 7
7. Front tibiae with a median dorsal bristle 8
Front tibiae without median dorsal bristle 10
8. Thorax yellowish-grey, with a more or less distinct central stripe...
6. *palaestrica*, Mg.
Thorax blackish, with slight grey tomentum and four (two broad outer and two
narrow inner) rather indistinct stripes 9
9. Hind tibiae with two, rarely three, antero-ventral bristles; calyptre whitish...
4. *dentipes*, Fab.
Hind tibiae with four to six antero-ventral bristles; calyptre more or less tinged
with yellow..... 5. *similis*, Meade.
10. Size larger (6 mm.); calyptre strongly tinged with yellow ... 7. *pilipes*, Stein.
Size smaller (3—4 mm.); calyptre without trace of yellow... 18. *parva*, Meade.
11. Abdomen shining black or blue-black, with scarcely a trace of tomentum ... 12
Abdomen more or less covered with grey tomentum 13
12. Frons all shining black; size smaller (3 mm.) 17. *glabriorula*, Fln.
Frons dull black, with a little grey tomentum; size larger (4—5 mm.)...
11. *tuberculata*, Rond.
13. Ocellar triangle black and conspicuously polished 2. *occulta*, Mg.
Ocellar triangle dull greyish, or at any rate never conspicuously polished ... 14
14. Hind tibiae with four to five antero-ventral bristles..... 3. *cyrtoneurina*, Ztt.
Hind tibiae with at most two antero-ventral bristles 15
15. Thorax shining black, with very little tomentum; size larger (5—7 mm.)...
12. *velutina*, Dev.
Thorax thickly covered with grey tomentum; size smaller (5—5½ mm.) ... 16
16. Arista distinctly pubescent; hind tibiae with three bristles about the middle...
13. *meteorica*, L.
Arista quite bare; hind tibiae with only two bristles about the middle...
8. *armipes*, Fln.

* As the female of *H. cinerea*, Dev., is not known to either Herr Stein or myself, I have not been able to include this species in the present key.

1.—*H. OILIATA*, Fab. *Male*: *Eyes densely hairy*; *arista* distinctly pubescent on basal half or two-thirds. *Thorax shining black* with a slight steely tinge; *shoulders* when seen from behind conspicuously *silvery-white*. Abdomen shining blue-black with three interrupted transverse bands of whitish tomentum. Front tibiae with a postero-ventral bristle at one-third from apex; *middle femora with a pair of very characteristic curved and upwardly directed apical dorsal bristles*, which are nearly half the length of the tibia and closely united with one another except for a short distance at their base; hind tibiae with a ventral tuft of fine hairs at the middle, which run out, but gradually diminish in length, to the apex. Calyptera conspicuous, whitish; halteres brownish-yellow. Size, 7—8 mm.

Female: *Eyes* practically bare; frons one-third of width of head, deep black, orbits slightly shining above, highly polished near antennæ, ocellar triangle large and highly polished. *Thorax blue-black, shining*; *shoulders*, and an indication of a central stripe in front, *glistening white*. Abdomen blue-black, shining and unicolorous, with a slight dusting on last segment. *Front tibiae with a small but distinct median postero-ventral bristle*; middle femora with a decided bend upwards in apical third; hind tibiae with one dorsal, two antero-dorsal, and three to four antero-ventral bristles in apical half.

The female of this species may be distinguished from that of *Ophyra leucostoma*, Wied., which it much resembles, by its much broader frons, its glistening white shoulders, its much more silvery cheeks, and the tomentum on the last abdominal segment.

Apparently common and widely distributed. I have seen specimens from many localities, ranging from Devonshire and the New Forest north to Arran and Edinburgh, also in Ireland. Mr. Verrall reports it also from Cornwall, Sussex, and Aberdeen. The dates range from June 4th to October 5th.

2.—*H. OOOULTA*, Mg. *Male*: *Eyes thickly haired*; *arista* slightly pubescent in basal half. *Thorax dull black*, when seen from behind with a very slight greyish tomentum, which leaves three broad but very indistinct black stripes; shoulders cinereous. *Abdomen bluish-cinereous, with a distinct almost continuous dorsal stripe* and the basal half of 1st segment black; a transverse brownish band at bases of 3rd and 4th segments. *Hind femora with a strong ventral spine near base*; hind tibiae with a complete antero-dorsal row of long, fine hairs, which gradually diminish in length as they approach the apex, a similar row on the apical half of anterior surface, and a sharply defined tuft on ventral surface at about one-third from apex. Wings brownish-hyaline, halteres blackish-brown. Size, 4½—5½ mm.

Female: *Eyes* with a few short scattered hairs; frons dull deep black; ocellar triangle black and highly polished. *Thorax black*, slightly shining and with a slight greyish tomentum; *shoulders cinereous*. Abdomen pointed at apex, black and slightly shining, with a slight greyish tomentum, which is thicker on the last segment. *Front tibiae bare*, except for the usual subapical dorsal bristle. *Hind tibiae with two (rarely three) dorsal bristles, viz., a small one near apex, a large one at one-third from apex, and sometimes a small one near middle, one anterior post-median bristle, and two to three antero-ventral ones in apical half.*

A common species. I have seen over thirty specimens, and have records which extend from the extreme south of England to Gairloch, Aberdeen and Golspie in the north. The dates range from April 20th to October 17th. The male is easily recognised, but the female is more difficult to identify. If careful attention be paid, however, to the characters given in the key and those in italics in the preceding paragraph, the latter sex may be identified with tolerable certainty.

3.—*H. CYRTONEURINA*, Ztt. (*silvicola*, Lw.). *Male*: *Eyes thickly haired above*, arista shortly pubescent in basal half. *Thorax deep black*, slightly shining, shoulders shining black. *Abdomen black with a slight olive-greenish tinge*, thickly covered with grey tomentum, which is much denser at the sides, giving an almost tessellated appearance, and leaving a somewhat indistinct dorsal stripe. *Hind tibiae with two dorsal bristles* in apical half, a complete but irregular row of antero-dorsal bristles, a regular series of about six antero-ventral bristles, and an irregular series of mixed bristles and hairs in the middle of the postero-ventral surface. *Wings strongly tinged with brown*; calyptra strongly tinged with orange. Size, 7—8 mm.

Female: Unknown to me. The following particulars are taken from Stein's description: *Eyes only shortly and sparingly hairy*, so that this sex is difficult to distinguish from the female of *dentipes*, which it much resembles. *Thorax dusted with grey*, when seen from behind with a rather broad but indistinct middle stripe. Sternopleural bristles, one anterior and one posterior, under the latter *never a second shorter one* (which is always the case in *dentipes*). Abdomen with slight tessellation and a trace of a dorsal line. *Middle tibiae without anterior bristle*; mostly with three posterior bristles. *Hind tibiae with one dorsal, two or more antero-dorsal, and four to five equally long antero-ventral bristles*.

A rare species, and possibly confined to the south of England. I have only seen five British examples, all males, viz.: two from Ivybridge (12.6.83) and one from Lynton (19.6.83), Devonshire, in Verrall's Collection, one from Ivybridge in the Brit. Mus. Collection, obtained by Col. Yerbury (4.5.93), and one from Felden, Herts (13.10.97), captured by A. Piffard, and also in the Brit. Mus. Collection. Meade refers (Ent. Mo. Mag., xviii, p. 123) to a specimen taken by C. W. Dale at Glanvilles Wootton.

4.—*H. DENTIPES*, Fab. *Male*: *Eyes bare, separated by a narrow deep black space*; arista distinctly thickened and pubescent at base. *Thorax shining black, with a very slight greyish tomentum*, which leaves four rather indistinct longitudinal black stripes, viz., two narrow inner ones and two broad outer ones, shoulders distinctly cinereous. *Abdomen greyish-olive*, covered with grey tomentum, which is patchy and much denser at the sides, giving a slightly tessellated appearance, base of 1st segment black, from which proceeds a slender dorsal black stripe, which is continued quite to the tip of the abdomen. *Front tibiae with two dorsal bristles*, one near the apex and a smaller one about the middle. *Middle tibiae with the anterior surface furnished with a regular and characteristic fringe of tiny hairs*,

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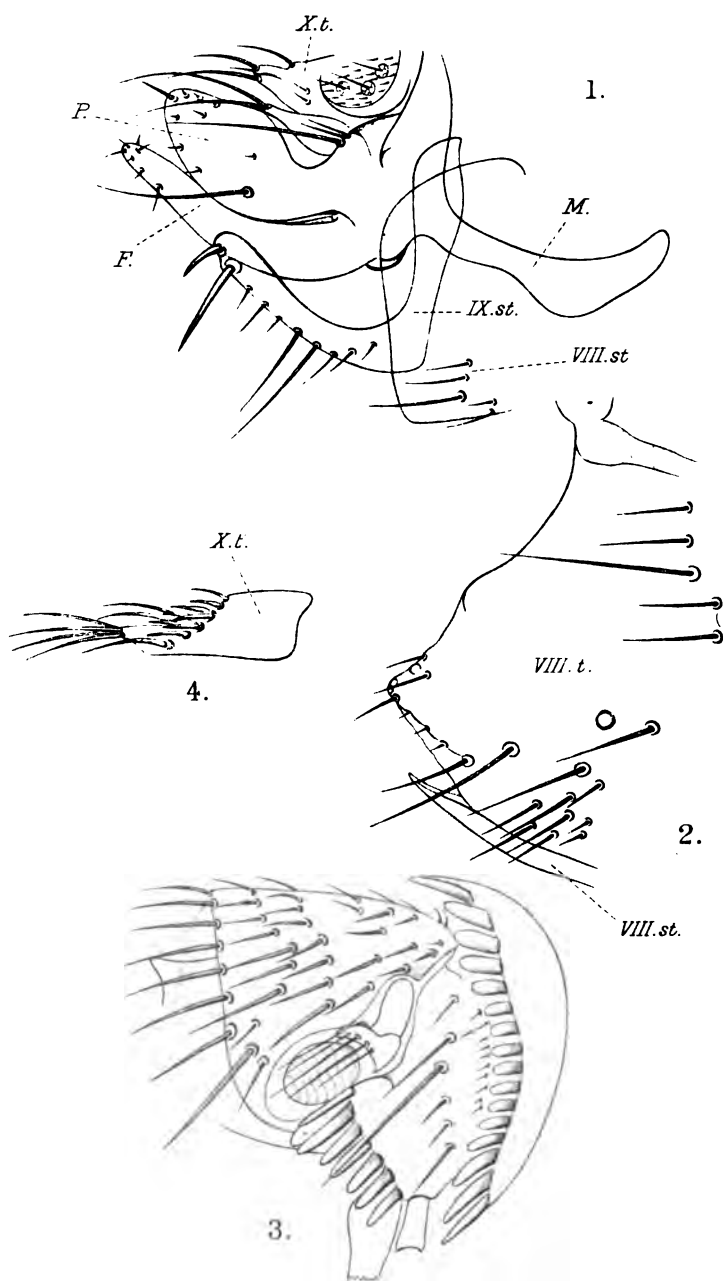
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tisements, or for a term.



K. J. del.

West, Newman lith.



ASPHODEL WITH TORTRIX UNICOLORANA.



TORTRIX UNICOLORANA, DUP.



1

4

2

3

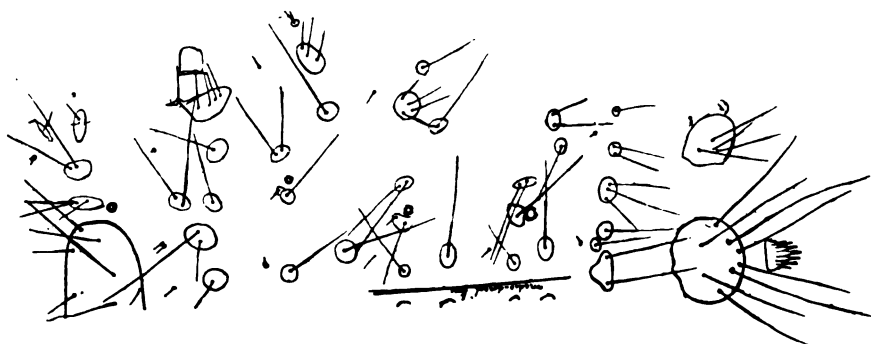
ASPHODELS WITH HASTULA HYERANA.



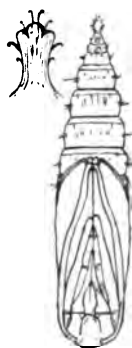
HASTULA HYERANA, Mill.



OVA OF HASTULA HYERANA $\times 20$.



1



2



3



4

DETAILS OF HASTULA HYERANA.



FIG. A.

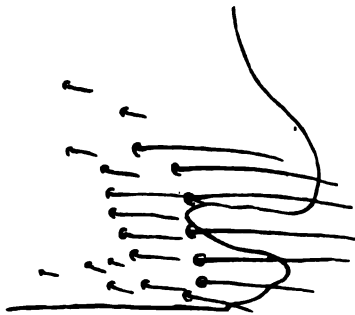


FIG. B.

CERATOPHYLLUS FARRENI, ROTHSCH., *n. sp.*



3 2044 106 258 403

